

MUNICIPAL GREEN BUILDING POLICIES

Strategies for Transforming Building Practices in the Private Sector

April 2008



MUNICIPAL GREEN BUILDING POLICIES

Strategies for Transforming Building Practices in the Private Sector

APRIL 2008

©Environmental Law Institute

ACKNOWLEDGMENTS

Funding for this report was provided by the U.S. Environmental Protection Agency under Assistance Agreement Number XA-83311001-0. The contents of the report are the responsibility of the Environmental Law Institute. The views expressed herein should not be attributed to EPA, nor should any official endorsement be inferred.

ELI gratefully acknowledges the assistance of numerous individuals who gave generously of their time to provide information about the policy initiatives discussed in this report and to review drafts of the report.

ABOUT ELI PUBLICATIONS

ELI publishes Research Reports that present the analysis and conclusions of the policy studies ELI undertakes to improve environmental law and policy. In addition, ELI publishes several periodicals—including the *Environmental Law Reporter*[®], *The Environmental Forum*[®], and the *National Wetlands Newsletter*—and books, which contribute to education of the profession and disseminate diverse points of view and opinions to stimulate a robust and creative exchange of ideas. Those publications, which express opinions of the authors and not necessarily those of the Institute, its Board of Directors, or funding organizations, exemplify ELI's commitment to dialogue with all sectors. ELI welcomes suggestions for article and book topics and encourages the submission of draft manuscripts and book proposals.

Municipal Green Building Policies: Strategies for Transforming Building Practices in the Private Sector

Copyright © 2008 Environmental Law Institute®, Washington, D.C. All rights reserved.
ISBN 978-1-58576-145-6 ELI Project No. 062103

An electronic retrievable copy (PDF file) of this report may be obtained for no cost from the Environmental Law Institute Website www.eli.org, click on “ELI Publications,” then search for this report. [Note: ELI Terms of Use will apply and are available on site.]

(Environmental Law Institute[®], *The Environmental Forum*[®], and *ELR*[®]—*The Environmental Law Reporter*[®] are registered trademarks of the Environmental Law Institute.)

CONTENTS

EXECUTIVE SUMMARY	v
CHAPTER ONE	
Introduction	1
CHAPTER TWO	
Policies that Establish Green Building Requirements	4
CHAPTER THREE	
Policies that Provide Expedited Review for Green Building Projects	16
CHAPTER FOUR	
Policies that Provide Direct Financial Incentives for Green Building Projects: Grants, Fee Waivers, Tax Breaks and Bonus Development	24
APPENDICES: POLICY SUMMARIES	29
Appendix A: Mandatory Policies	
Arlington County, VA	Aspen/Pitkin County, CO
Austin, TX	Boston, MA
Boulder, CO	Calabasas, CA
Frisco, TX	Long Beach, CA
Marin County, CA	Montgomery County, MD
Pasadena, CA	Pleasanton, CA
Santa Cruz, CA	Washington, D.C
Appendix B: Expedited Review Policies	
Anaheim, CA	Arlington County, VA
Chicago, IL	King County, WA
San Francisco, CA	Santa Cruz, CA
Santa Monica, CA	Sarasota County, FL
Scottsdale, AZ	Washington, DC
Appendix C: Financial Incentive Policies	
Baltimore County, MD	Chatham County, GA
Cincinnati, OH	Arlington County, VA
Seattle, WA	

EXECUTIVE SUMMARY

Over the past several years, cities and counties throughout the United States have played an important role in advancing sustainable building practices. Municipalities are helping to create buildings that are healthier and more environmentally and economically sustainable, both through their leadership in public building projects and through their initiatives to transform private-sector building activities.

This report reviews over 25 different municipal policies that promote green building in the private sector by (1) mandating green building practices, (2) providing expedited review of green building projects, or (3) providing other direct financial incentives for green building projects. Although many of the municipalities included in the report are in California, all regions of the country are represented. While most jurisdictions are medium or large in population, the report also includes several smaller cities and counties.

A key to developing an effective green building policy is aligning the elements of the policy with the political, economic, and institutional circumstances of the municipality. Some jurisdictions have chosen to focus their policies on smaller residential development. Others have identified greater opportunities for change in the commercial sector, which might include office buildings and large multi-family buildings, as well as mixed-use and industrial projects. Some municipalities have begun with a modest incentive program, and others have started out with a more far-reaching set of requirements or incentives. A number of the policies have evolved over the past few years, with municipalities raising their green building standards and strengthening the implementation of those standards.

The experiences of cities and counties to date, including those discussed in this report, reflect different approaches to bringing about sustainable building practices and offer varied models for others to consider.

TYPE OF POLICY STRATEGY

Establish green building requirements. About half of the municipalities included in the report require certain private-sector building projects to meet a minimum green building standard established by the policy. In general, policy makers and program officials in these jurisdictions felt strongly that a mandatory policy, rather than incentives, would be most effective at changing building practices. Some of the jurisdictions began with phase-in periods, and some started out with more modest green building standards and have increased those standards recently. For the most part, though, these mandatory policies did not evolve from voluntary, incentive-based policies.

Provide expedited review for green building projects. Expedited review is a widely-used incentive, with 10 of the jurisdictions included here offering this as a central component of their green building policies. Whether expedited review can be an effective incentive depends heavily on the structure and timing of the municipality's existing building review process and the availability of staff resources to ensure significantly faster review for qualified projects. In general, commercial and large residential projects, which typically undergo a more complex and lengthier review, may offer an opportunity for the largest reductions in processing time. Yet even a

modest reduction can be a significant incentive when the turn-around time is certain. Municipalities can also provide green building projects with a higher level of municipal assistance and coordination throughout the review process, in conjunction with faster processing.

Offer direct financial incentives. The 12 policies included in the report that provide some type of direct financial incentive differ considerably in the nature and scope of the incentive. All of the tax incentives and the bonus development policies stand on their own. The policies providing grants or fee waivers are either combined with other incentives such as expedited review, or are offered to encourage projects to go beyond any mandatory minimum green building requirements established by the policy. Grants, tax breaks, and building fee waivers provide the most straightforward benefit to projects, and their use depends largely on the financial resources and programs available to the municipality. Bonus development can also provide a significant financial benefit to private-sector projects in jurisdictions that are able to integrate the incentive within their existing planning and zoning requirements and processes.

GREEN BUILDING CRITERIA

Whether a policy is mandatory or incentive-based, substantive green building criteria form the core element of the policy. The design and scope of the criteria vary depending on a variety of factors, including existing municipal building requirements, environmental and public health priorities within the municipality, and community experience with and support for green building initiatives. It is important for policy makers to consider certain structural issues when establishing their green building criteria.

Incorporate third-party systems. The majority of policies discussed here incorporate the criteria of third-party green building rating systems. These flexible, point-based systems reduce the burden on policy makers to create their own green building crite-

ria. They also provide criteria that have been tested and that may already be familiar to the local building industry. The criteria developed for the U.S. Green Building Council's LEED rating system are referenced by a large majority of the municipal policies described here, generally for commercial and large, multi-family projects. Several municipalities incorporate the criteria of regional, third-party rating systems, such as those based in California, Florida and Washington. When using third-party systems, municipalities must determine which of the green building rating levels (or tiers) used in those systems will apply to projects covered by the policy.

Address local priorities. Although third-party systems are a considerable resource to policy makers, they may not adequately reflect local environmental priorities. Similarly, their point-based flexibility is both an advantage and a disadvantage, as policy makers cannot ensure that their priority green building measures, even if incorporated into the rating system as options, will be selected by builders.

Some municipalities that use third-party criteria have taken steps to address local environmental priorities. It is difficult to alter third-party frameworks, particularly if the municipality requires or encourages formal certification by the third-party organization. One alternate approach is to establish green building measures that are apart from and supplement the third-party systems. The municipality would then be responsible for ensuring compliance with those additional measures. Municipal green building policies could also establish as prerequisites certain measures that are listed as optional in the third-party system.

Rather than integrate third-party rating systems, several of the mandatory and expedited review policies discussed here address local priorities by establishing their own criteria, which mainly take the form of flexible, point-based systems. These policies emphasize building practices relating to energy, water, and waste, as well as indoor environmental quality. Jurisdictions that maintain their own criteria can also integrate existing third-party guidance, such

as EPA's Energy Star program, or the agency's new Energy Star/Indoor Air Package guidance. (See http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_iap.)

In addition to adopting third-party green building criteria or creating their own rating system, municipalities can revise the local building (or related) codes to require certain specific green building measures. Most, if not all, jurisdictions already have some code provisions in areas such as energy efficiency, storm water management, combustion safety, etc. It is thus important for local policy makers to (1) consider the extent to which existing municipal building requirements already establish green building measures, (2) identify priority green building measures that are not yet incorporated into municipal policy, and (3) ensure that these priorities are addressed when establishing minimum green building requirements or incentives.

COMPLIANCE AND ENFORCEMENT

Regardless of the minimum green building standard created, it is vital for a mandatory or incentive-based green building policy to create effective mechanisms for documenting and verifying compliance. Municipal oversight will help ensure that green building features are not eliminated as projects proceed through design and construction and will also help the municipality track and demonstrate green building results. Policy makers should consider establishing detailed provisions that specify the type of green building documentation to be submitted, the timing of submissions, and the process for municipal review of the documentation.

Incorporate third-party certification. One approach to ensuring compliance with third-party rating systems is to require certification by the third-party rating organization. Nearly all mandatory policies that use the LEED criteria have stopped short of requiring formal LEED certification, as they are reluctant to delegate oversight to a third-party organization, to complicate the timing of building

approvals, and to require projects to pay third-party certification fees.

By contrast, voluntary, incentive-based programs typically do require formal certification. Where policies provide financial incentives *following* third-party certification (such as grants or tax credits), the municipality's oversight burden is reduced dramatically. For programs that provide incentives earlier in the process (expedited review, bonus development, fee waivers), the municipality must make an initial eligibility determination based on whether a project has documented that it will likely achieve the appropriate green building certification. This could be accomplished by requiring LEED registration or by having projects submit green building checklists and/or narratives.

Determine the scope of municipal oversight. Mandatory policies, which generally do not require third-party certification, must integrate and coordinate green building oversight with the existing building approval and permitting processes. Most programs have relied heavily on up-front design review, rather than establishing detailed procedures for verifying green building measures during the construction phase. However, some long-standing programs have begun to place a greater emphasis on using the city inspection process, as well as third-party raters, to verify compliance during construction. These changes reflect a desire to both ensure compliance and to more fully document the results of the green building program. Policy makers should consider resource needs, as well as the need for inter-agency coordination (especially if the policy has been developed or managed by the permitting and inspection agency) when developing an effective approach to municipal oversight.

Ensure adequate municipal staffing to oversee compliance. A majority of the mandatory and expedited review programs described here have *specialized staff* members who take primary responsibility for overseeing implementation of the green building policy, including review and approval of green building documentation. Municipalities have taken a vari-

ety of approaches to staffing, including: (1) changing the job responsibilities of existing staff, (2) hiring new staff, (3) using staff from the city's pre-existing green building program, (4) hiring green building consultants to supplement agency staff, and (5) requiring project applicants to hire their own green building professionals in order to help ensure the quality of the project's green building documentation and thereby reduce the burden on municipal staff.

Establish enforcement mechanisms. Enforcement has not been a significant focus of the programs described in the report. Nevertheless, the policies adopted by these municipalities incorporate examples of enforcement measures that should be considered when developing a mandatory or incentive-based policy, including: (1) withholding of final occupancy certificates (or comparable approvals) until projects comply with green building requirements, (2) authorizing agencies to require substitution of alternative green building measures if features included in project are not met during construction, (3) establishing monetary penalties, and (4) requiring a bond that is forfeited if projects do not comply with green building requirements.

RESOURCES FOR IMPLEMENTATION

Providing adequate resources for implementation is critical to the success of any policy, and it is important for policy makers to identify these costs at the outset and to plan accordingly. Steps to address these costs include establishing/increasing building fees and allocating funds for specific, anticipated costs. Although resource needs will vary with the size and structure of the municipality, as well as the scope of the policy, the financial impact of certain key program components should be anticipated when developing the policy.

Identify staffing resources. As noted above, staff resources are needed to *oversee compliance* by reviewing green building documentation and conducting inspections. Staff members are also needed to pro-

vide *public outreach and education*. Many programs emphasize the importance of conducting extensive outreach in order to involve stakeholders in development of the policy and to increase community awareness and understanding of the policy. In order to ensure adequate staffing, some programs have used existing budgets to hire new staff or consultants, while others have shifted existing staff responsibilities.

Provide resources for staff training. Most green building program officials agree that training for municipal staff is critical to effective policy implementation. Some jurisdictions have used revenue from new building fees to conduct training, and others have coordinated training through existing municipal green building programs.

Provide resources for monetary incentives. Green building grants are the clearest example of policy strategies that require designation of specific funding sources. Tax breaks and fee rebates require careful budget planning and integration with existing municipal programs in order to identify the appropriate amount and duration of the incentive.

PROGRAM EVALUATION

While many municipalities have evaluated their programs informally, the jurisdictions discussed here generally have not carried out formal evaluation activities, citing a lack of dedicated resources as the chief obstacle. Most green building officials acknowledge, however, that program evaluation is a key area for future green building policy development to help ensure that municipal resources are being used effectively to achieve environmental and public health goals.

Re-evaluate and update the green building policy and program. An important element of a green building policy is to plan for review of the policy itself within a few years—*e.g.*, three-five years after enactment. The review process can include: discussions with the building community and other stake-

holders; an evaluation of compliance and/or participation levels; and a determination of whether green building criteria should be adjusted. A number of jurisdictions have revised and raised their minimum green building criteria after a period of time, as experience with the policy increases and the municipality strengthens its broader environmental and public health goals.

Evaluate projects built under the policy. With limited exception, the municipalities discussed here have not sought systematically to collect and analyze information about buildings constructed under the policies. As programs mature, this is an important area for policy development.

As a beginning step, municipal agencies can collect information about which *types of green building features* are being included in new projects. Most policies require submission of checklists or scorecards that list the green building measures included in the project. Many jurisdictions are already collecting this information electronically, but lack the resources to manage and analyze the data comprehensively. Third-party green building rating organizations may be able to help provide municipalities with this type of information for certain projects.

A more significant step would be to collect information about *building performance* following construction. This can be done by identifying the “typical” building constructed under the municipal green building standards and estimating savings in areas such as energy and water. Municipalities can also require projects to submit modeling or calculations and use this data to analyze environmental results of the program. A more far-reaching step would be for policy makers to authorize program officials to require projects to submit information about actual building performance, and for programs to collect and analyze this information.

Another related issue which has yet to be addressed directly by the policies discussed here is the establishment of requirements for *building operation and management*. Proper operation and maintenance of green buildings is critical to ensure that the benefits of green building design and construction are fully realized. As third-party rating systems and other tools for measuring green building operations become more widely used, future green building policies can begin to look beyond design and construction to the sustainable management of green buildings.

INTRODUCTION

At the beginning of this decade, green building was largely the province of pioneering government agencies, non-governmental organizations and building professionals. Since then, great strides in technical knowledge, information tools and other resources have helped advance significantly the practice of green building throughout the country. By 2008, the term “green building” has become part of the national lexicon, signifying a greater level of public awareness of and support for creating buildings that are not only more resource efficient, but also healthier for occupants. Nevertheless, while the practice of green building has become more widespread, there is still much ground to be gained in transforming conventional building practices and bringing sustainable building into the mainstream.

Government policies and programs are playing an important role in this transformation. For many years, state governments, municipalities, school districts, and federal agencies have been leading by example and changing the way they design and construct their own buildings. More recently, policy makers and government agencies also have begun to develop initiatives to promote green building in the private sector.

Local governments are especially well positioned to promote green building practices in private commercial and residential development. Through land use planning, building regulation, and economic development programs, municipalities can help to establish an approach to building that minimizes environmental impacts while improving building performance. Over the past few years, many city and county policy makers have seized this opportunity and have enacted laws, regulations and other formal

measures that require or encourage green building in the private sector. In many cases, local policies have been part of initiatives designed to advance broader environmental and public health goals throughout municipal programs. This report reviews a range of established green building policies, so that municipalities around the country can benefit from the lessons learned as they work to chart a more sustainable path to economic development.

PURPOSE AND SCOPE

The report presents a detailed review of selected municipal green building policies that address private-sector development. The report covers policies that: (1) establish *mandatory* green building criteria; (2) provide *expedited review* as an incentive for green building; or (3) offer other *direct financial incentives* for green building, including grants, fee waivers, tax breaks, and bonus development. (Bonus development here refers generally to the ability to develop a particular property to a greater density or height than otherwise allowed in the local zoning/land use code.) Other governmental incentives and services, such as technical assistance and promotional materials, are discussed only insofar as they are part of a policy that includes one of these other three types of strategies. The central purpose of the report is to provide information about these policies and their implementation to municipal policy makers and others interested in advancing private-sector green building at the local level.

The report discusses the key elements to consider when developing a policy in this area, drawing on examples from existing policies and from municipal

experiences implementing their policies thus far. Green building policies and programs vary considerably, reflecting differences in municipal legal and administrative structure, the type of development that is prevalent in an area, and the political and economic circumstances that prevail. For this reason, the report does not rate or rank current policies, nor does it evaluate the results of the policies. Rather, the following chapters aim to distill the central elements of an effective policy and to provide a better understanding of the various approaches that can be adapted based on the characteristics, needs, and goals of a particular jurisdiction.

The policies selected for inclusion here share some basic characteristics that reflect the scope and purpose of the report.

Private-sector building activities. The report discusses how policies address development that is wholly private. Municipal policies that cover only public buildings and/or buildings that receive public financing are not included. Similarly, the policies included in the report are discussed only in terms of their provisions relating to private-sector development, even though many of the policies also contain directives or incentives for public or publicly-financed projects.

Established policies. Given the recent increase in municipal policy making in this area, the report does not attempt to include all policies that have been adopted as of this writing. In order to capture municipal experience with implementation, the report includes policies adopted before 2007. Thus, recent policy initiatives—such as notable efforts in San Francisco, Portland (Oregon), Los Angeles and elsewhere—are not included. Moreover, not *all* relevant policies adopted prior to 2007 are included here. In some cases, sufficient information about a policy and its implementation was not available. In total, the report reviews the policies of 25 different municipalities. A few of these jurisdictions have adopted multiple policy strategies, and these are described separately in the following chapters.

Broad green building focus. The term “green building” is used here to describe the integrated consideration of a wide range of building elements that can result in healthier and more resource-efficient buildings. This report discusses policies that require or promote consideration of a broad array of environmental goals in the building process. Policies that address single issues, such as energy or water conservation—though important—are not included here. Indoor environmental quality is an important element of green building; thus, policies that address resource conservation goals, but do not include indoor environmental quality, are not covered in the report. For the municipalities included here, the report discusses the broad green building policies, but not other individual energy or environmental policies that may also be in place in these jurisdictions.

Nearly all of the policies described in the report incorporate flexible green building frameworks and point-based rating systems. While a few notable jurisdictions have developed their own green building criteria, most incorporate criteria and rating systems that have been developed by non-governmental organizations. These third-party systems have become increasingly popular over the past few years. Prominent among these is the U.S. Green Building Council’s (USGBC) *Leadership in Energy and Environmental Design (LEED)* rating system. The USGBC is a membership-based, nonprofit organization that has developed green building rating systems for several different building sectors—*e.g.*, LEED-New Construction, LEED-Core and Shell, LEED-New Developments, and LEED-Homes. The widely-used LEED rating systems are developed through a consensus-based process managed by the USGBC and led by volunteer committees.

In general, LEED is a “flexible” system; in addition to certain required measures, the framework consists mainly of a broad range of optional green building measures that may earn a project points. Depending on the number of points/credits incorporated by a project, it may be certified by the USGBC as achieving one of four levels of green building—from certified (the lowest) through silver,

gold and platinum. This report does not provide detailed information on the LEED rating system or the USGBC's certification process, which is available on the USGBC website (www.usgbc.org). Most policies included in the report incorporate the LEED criteria in some fashion, and the report uses the abbreviations "USGBC" and "LEED" throughout. In addition, the report may use the terms LEED-AP, or LEED-Accredited Professional, which refers to the designation given by the USGBC to building professionals who have demonstrated an understanding of the green building practices and principles of the LEED rating system.

In addition to the LEED system, there are other national green building rating systems that have been developed recently. Examples include the Green Globes system managed by the Green Building Initiative, the Model Green Home Building Guidelines developed by the National Association of Home Builders, and the Green Communities criteria for affordable housing created by Enterprise Community Partners. With limited exceptions, these systems have not been incorporated specifically into the policies discussed in this report. A number of regional organizations have created their own green building rating systems as well. Many of the policies discussed in the report incorporate such systems (in particular, the GreenPoint Rated system in California), and descriptions of these systems are included in the summaries of individual policies contained in the Appendices.

STRUCTURE AND METHODOLOGY

The organization of the report reflects its focus on different types of green building policy strategies. Each of the following chapters addresses a specific policy strategy—mandatory policies (Chapter Two), expedited review policies (Chapter Three), and other financial incentive policies (Chapter Four). Each of these chapters provides an overview of all of the poli-

cies in the report that pursue the particular policy strategy. The overview presents the key considerations for developing an effective policy, noting examples from individual municipalities.

While Chapters Two, Three and Four provide a general understanding of how municipalities have pursued a particular policy strategy, the Appendices offer an in-depth look at individual policies. The Appendices present detailed information about each policy covered in the report, in the form of individual Policy Summaries. These Policy Summaries are organized by the type of strategy they adopt—Appendix A (mandatory policies), Appendix B (expedited review policies) and Appendix C (financial incentive policies).

The information in the report is drawn from three principal sources.

Policies. In this report, the term "policy" includes any legislative or administrative enactment, such as a law, ordinance, resolution or regulation. In cases where a municipality has a formal green building incentive program but has not adopted the program through legislation or regulation, the term also includes the relevant written documents prepared by the municipality to guide the program. Citations provided in the Policy Summaries are to legislation and regulations, unless otherwise indicated.

Related written materials. ELI also reviewed other materials prepared by the municipality describing the policy and its implementation, and these materials are cited throughout the report.

Municipal officials. For each policy included here, ELI spoke with the green building program manager about interpretation and implementation of the policy. Information that was provided by municipal officials is generally preceded by the phrase, "according to officials."

POLICIES THAT ESTABLISH GREEN BUILDING REQUIREMENTS

This chapter reviews 14 “mandatory” green building policies—that is, policies establishing green building requirements for private residential and/or commercial projects. Awareness and use of green building practices have increased considerably since the earliest municipal programs pioneered the development of policies to advance green building in the private sector. Nearly half of the policies discussed here, including the earliest ones, have been revised recently to address these changes. The jurisdictions included, and the year their policies were enacted/revised, are:

- Frisco, TX (2001/2007)
- Boulder, CO (2001/2008)
- Marin County, CA (2001/2008)
- Austin, TX (2003)
- Aspen/Pitkin County, CO (2003/2008)
- Pleasanton, CA (2003/2006)
- Calabasas, CA (2004)
- Arlington County, VA (2004)
- Pasadena, CA (2006/2008)
- Long Beach, CA (2006)
- Santa Cruz, CA (2006)
- Washington, DC (2006)
- Montgomery County, MD (2006)
- Boston, MA (2007)

Population	Jurisdiction
15-25,000	Aspen/Pitkin County, Calabasas
50-100,000	Boulder, Frisco, Marin County, Pleasanton, Santa Cruz
140-200,000	Arlington County, Pasadena
over 450,000	Austin, Boston, Washington, D.C., Long Beach, Montgomery County

These municipalities vary in population, from Aspen/Pitkin County, Colorado (20,718) to Montgomery County, Maryland (927,583). While many smaller municipalities developed the earliest green building policies, the growing acceptance and practice of green building is reflected in the recent adoption of policies by four large cities and counties.

These policies have been enacted as legislation under different areas of municipal authority. Many policies have been adopted as part of the municipal zoning, land use or planning codes, especially in states that restrict municipal authority to alter building codes. Other policies fall within various municipal code provisions regulating buildings.

This chapter discusses the key elements of mandatory green building policies, drawing on examples from individual jurisdictions. In a few cases, the mandatory policies are complemented by incentives, which are discussed in Chapters Three and Four.

SCOPE OF COVERAGE— TYPE AND SIZE OF BUILDINGS

For most of the policies described here, policy makers sought to cover a considerable segment of new construction and major renovation activities, though none of the policies cover all building types and sizes throughout the entire municipality. The thresholds established by the policies reflect a variety of factors, including: the type of development prevalent in the municipality; the government’s institutional capacity for overseeing the new requirements; the level of green building experience and expertise in the pri-

Building Type	Jurisdiction
Commercial and Residential	Arlington, Aspen/Pitkin County, Austin, Boston, Long Beach, Montgomery County, Pasadena, Pleasanton, Santa Cruz
Residential Only	Boulder, Frisco, Marin County
Commercial Only	Calabasas, Washington D.C.

vate sector; and the political feasibility of establishing broad-based coverage.

Determining the types of buildings to cover. Most of the mandatory policies included here apply to both commercial and residential buildings, though some of these policies explicitly limit residential coverage to multi-family buildings. The three earliest policies cover residential properties only, with Frisco explicitly limiting the requirements to single-family homes. (Frisco developed a separate commercial policy in 2006 that is somewhat narrower in scope and is not included in this report.)

Determining the size of buildings to cover. Most of the policies establish minimum size thresholds for coverage. The precise square footage selected reflects the type of development in the community as well as the municipality’s green building goals. By contrast,

Austin’s green building requirements are based largely on the building’s location within certain zoning districts and/or the city’s issuance of discretionary zoning variances.

The policies that apply to *single-family homes* generally establish size thresholds that would cover most homes built in the municipality. Boulder’s narrow set of required green building measures applies to all homes, while homes over 1,500 square feet must also achieve a minimum point total from a broad checklist of optional measures. In Aspen, the city’s numerous mandatory measures apply to all homes over 1,000 square feet, while projects over 5,000 square feet must select from additional measures. Marin County’s policy, which limits coverage to homes that are at least 4,000 square feet or that require a variance or special approval, captures about 75 percent of new homes in the county, according to officials. Austin’s policy covers single-family homes that are part of designated planned unit developments or special development zones, in addition to those that participate in the city’s main affordable housing program.

Most of the mandatory policies that apply to *commercial and multi-family residential* properties also establish minimum size thresholds that cover a substantial portion of building activity in the jurisdiction. Many municipalities have established thresh-

Jurisdiction	Residential Threshold (ft ²)	Commercial Threshold (ft ²)
Austin	0	0
Frisco	0 (single-family homes only)	n/a
Santa Cruz	350	1,000
Calabasas	n/a	500/5,000
Marin County	4,000 or discr. review projects	n/a
Aspen/Pitkin County	1,000/5,000	1,000/5,000
Boulder	0/1,500	n/a
Pleasanton	2,000	20,000
Montgomery County	10,000 and 4 stories	10,000
Pasadena	4 stories	25,000/50,000
Boston	50,000	50,000
Long Beach	50 units	50,000
Washington, DC	n/a	50,000
Arlington County	site plan (discr. review) projects	site plan (discr. review) projects

olds for coverage that are consistent with the size thresholds already established for detailed planning-phase review. This approach aims to streamline the process for implementing the new green building policy. The size thresholds also reflect the view of some policy makers that larger developers can more easily absorb the added costs and apply the additional resources that may be required for compliance with green building standards.

GREEN BUILDING CRITERIA

Substantive green building criteria and guidelines are central to any green building policy. For mandatory policies, it is particularly important to consider how the policy will reflect the municipality's environmental and health priorities. Most of the policies covering commercial development have incorporated the LEED criteria without significant modification, while several of the policies covering residential development have created their own green building criteria. Although municipalities can modify third-party systems to incorporate local priorities, the jurisdictions covered here have not done so to a significant extent.

Policies for Single-Family Homes

Of the seven policies that apply to single-family homes, five (Boulder, Frisco, Austin, Aspen/Pitkin County and Santa Cruz) have developed their own green building criteria. Most of these five were among the first residential green building policies to be enacted, and each has been revised and made more stringent, to reflect changes in codes and building practices. The other two policies (Marin County and Pleasanton) are both in California and incorporate the criteria of the GreenPoint Rated system, a third-party system managed by the California-based organization, Build It Green. (Marin County plans to adopt this system in 2008 to replace the county-specific green building guidelines developed when the policy was first adopted in 2001.)

Establishing required and optional green building measures. Although the GreenPoint Rated sys-

tem is comprised mainly of optional criteria, there are requirements for construction waste diversion and energy performance, and all projects must achieve a stated minimum number of points in each of four different categories of green building measures. The IAQ criteria include a large number of points for projects that follow EPA's new Energy Star/Indoor Air Package guidance.

The municipalities that have created their own criteria address local priorities in different ways.

- The city of Frisco's is the most straightforward system, consisting solely of a streamlined set of 17 different required measures in the areas of energy efficiency, water conservation, indoor air quality and waste recycling.
- In Boulder, Aspen and Austin, the green building guidelines include certain required measures, combined with a flexible, point-based system of optional criteria. Aspen has included many requirements emphasizing energy and indoor air quality, while Boulder has established a smaller number of requirements, mainly with respect to energy efficiency and construction waste management. Austin's single-family criteria include several prerequisites for all projects in the areas of energy efficiency, water conservation, and indoor environmental quality, in addition to numerous optional measures that can earn points for the project.

Using criteria to promote smaller homes. Some municipalities encourage the building of smaller homes by establishing tiered requirements tied to home size. In Austin, a project may earn points from the single-family green building rating system if the home is not more than 1,500 square feet. Boulder and Santa Cruz structure their green building criteria to require larger homes to achieve higher point totals. For municipalities that seek to encourage smaller homes in this way, it is important to consider carefully the core environmental and health prerequisite measures that should apply to *all* homes, regardless of size. In Aspen/Pitkin County, the municipality is considering revised green building

criteria that include mainly required measures for all homes, along with certain optional, point-based measures that are applicable only to large projects over 5,000 square feet.

Integrating third-party guidance. In addition to the two policies that use the GreenPoint Rated systems, jurisdictions with their own green building criteria have increasingly incorporated elements from third-party rating guidance documents and rating systems. Some of these municipalities have revised their criteria to emphasize consistency with EPA's Energy Star program criteria and use of the Home Energy Rating System (HERS). In addition, the Boulder policy also allows certification through LEED (silver level) as an alternative to achieving the minimum point totals required from the city's optional green building criteria. Boulder's optional criteria also offer several points for projects that meet EPA's voluntary Energy Star/Indoor Air Package guidelines.

Policies for Commercial and Multi-Family Residential Properties

Two of the ten policies that cover commercial and multi-family residential properties use their own green building criteria. Aspen/Pitkin County is revising its residential criteria in 2008 and expects to apply the criteria to commercial as well as residential projects. Austin has developed separate green building rating systems for multi-family and commercial buildings, in addition to its residential criteria. (See text box.)

The remaining eight policies use the LEED rating system as the basis for their commercial/multi-family green building requirements, though the policies differ in how they incorporate the LEED criteria. Most municipal officials indicate that the LEED criteria were selected because LEED represents an established, consensus-based framework with which many commercial developers are already familiar. The following paragraphs highlight several important considerations for municipalities seeking to adopt a third-party rating system such as LEED.

Green Building Criteria for Commercial and Multi-Family Buildings in Austin

Austin is unusual in having developed separate municipal green building criteria and rating systems for multi-family and commercial buildings, as well as single-family homes. These criteria include several minimum prerequisites for all projects, along with optional measures that can earn points for the project. Projects may receive a rating of one-five stars, depending on the number of points earned. Most projects falling under the city's mandates must earn one or two stars.

The commercial criteria include several prerequisites in the areas of commissioning, energy efficiency, water use, low-emitting materials, recycling and construction waste management. The multi-family criteria include prerequisites in the areas of transportation alternatives, energy efficiency, efficient lighting, commissioning, water use, construction waste management, and IAQ (low-emitting materials, filtration, moisture control). See <http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Programs/index.htm>.

Establishing the level of green building required. Policies typically require that covered projects meet the criteria of the LEED *certified* level, and a few jurisdictions ask that projects include a two or three-point margin for green building credits that may be eliminated during the design and construction process. While not explicitly stated in the county's policy, Arlington County is applying its policy to require that virtually all projects achieve the minimum number of points required for the LEED certified level. The policy of Santa Cruz, on the other hand, requires projects to achieve a much lower number of total points than is required to meet the LEED certified level.

Two cities require that all projects meet the LEED certified level, but establish the LEED silver-level criteria for larger projects. This higher level applies to projects over 50,000 square feet in Pasadena (effective in 2008), and to projects over 5,000 square feet in Calabasas.

Modifying third-party criteria. Municipal policies generally incorporate the LEED criteria without modification. The city of Boston has established additional credits that projects can choose from, in the areas of electricity distribution, historic preservation, ground water recharge and transportation demand management. Many municipalities already have code provisions that require some of the optional credits incorporated in LEED and other third-party systems—requirements for energy performance, construction waste management, etc.

Providing for use of alternative rating systems. Some policies state that projects may use an alternate rating system that is equivalent to LEED, provided that the municipality approves the system (either on a case-by-case basis, or through regulation). Few, if any, of the jurisdictions described here have reviewed projects using alternate systems as yet.

Phasing-in requirements. Some municipal policies have included a phase-in period during which covered projects must submit green building checklists but are not required to achieve the minimum number of points. A short phase-in period may help facilitate implementation of the policy in some cases, allowing the municipality and development community an opportunity to become familiar with the requirements. Santa Cruz' policy established a one-year phase-in period, after which the minimum standards would take effect. In Washington, D.C., the phase-in period of up to five years may diminish the impact of the requirements, particularly in light of the rapidly evolving field of green building, although the policy does provide for incentives to encourage earlier implementation.

DOCUMENTATION AND VERIFICATION OF COMPLIANCE

Documentation and verification of compliance are critical elements of a green building policy, especially policies that establish mandatory criteria. Municipal approaches to overseeing compliance

vary, and many agencies are still grappling with the challenges of integrating a new set of requirements into their existing building review processes. However, most jurisdictions included here agree that if a municipality decides to take the step of requiring projects to meet green building criteria, the policy should include an effective mechanism to verify compliance. A number of the earliest policies that began with a reliance on self-certification have evolved to include a greater degree of municipal and third-party verification.

Policies Requiring Third-Party Certification

Few of the mandatory green building policies rely on third-party certification to verify compliance. Although third-party certification might help reduce the burden on municipal staff to ensure compliance with third-party criteria, policy makers have been reluctant to delegate oversight of compliance with building requirements to an entity outside the local government. Officials also have been reluctant to impose on builders the fees associated with third-party certification and to complicate the timing of the building approvals process by including a certification decision over which they have no control.

Nevertheless, a few municipalities have incorporated third-party certification to different degrees. As noted above, Marin County's proposed policy revision for single-family homes would require third-party certification using the GreenPoint Rated system, a change from the original policy which relied on self-certification of compliance with county-developed criteria. Washington, D.C.'s green building law for commercial projects requires that the city verify compliance either through a District agency or through a third party. The District is considering requiring LEED certification as the primary means of verifying compliance once the law's private-sector mandates take effect. Montgomery County's green building regulations reflect a *preference* for projects to achieve LEED certification, though the county itself will verify compliance for those projects not pursuing LEED certification.

Policies Not Requiring Third-Party Certification

Most of the mandatory policies included in this report rely on municipal agencies to review projects for compliance with the minimum green building criteria. In these cases, the jurisdiction must consider carefully how to align applicant documentation responsibilities with agency oversight. Several of the mandatory policies that create their own residential green building criteria include details on how individual green building measures are to be verified. (See text box.) The mandatory commercial green building policies vary in the extent to which they establish specific documentation and verification requirements. The city of Pleasanton has a very detailed ordinance, and Montgomery County has developed regulations to implement its ordinance. Pasadena has created a detailed guidance document outlining the implementation process. Most other programs establish documentation and verification requirements in practice, if not formally in their written policies.

Municipal Verification of Compliance for Residential Policies

Boulder, Frisco, Aspen, and Austin were among the early green building programs and each city developed its own residential green building criteria. All have since revised their policies to update the criteria, and most have increased their emphasis on verification of compliance.

As part of their revised green building checklists, Aspen and Boulder list for each required or optional measure the corresponding method of municipal verification required either plan check or specific city inspection. Frisco also uses city inspections to verify items not subject to third-party testing. All three of these jurisdictions now require the use of HERS raters, and Frisco strengthened this requirement to eliminate “batch testing” and to provide for municipal spot checks of the testing results. Austin’s single-family home criteria (as well as its other criteria) list specific types of documentation required for various green building measures, and the program conducts two or three separate green building inspections for a typical project.

Specifying the type of documentation required.

Compliance with green building requirements is verified primarily by reviewing documentation submitted by builders during the municipal building approval process. Most municipalities require that covered projects submit the relevant green building checklist—either the city’s own checklist or the checklist for the third-party green building system used. An important additional requirement for several jurisdictions is a narrative explanation of how each green building measure on the checklist is (or is not) being incorporated. A number of municipalities also explicitly require that green building measures are clearly referenced in project plans and specifications.

Additional documentation requirements vary depending on the type of green building measures included in a project, as well as on the extent of the municipality’s oversight role. For example, where projects include certain green materials on their checklists, some agencies will require supporting documentation, such as the contract language to be used during the construction phase. A few jurisdictions require projects to register with the USGBC, thereby enabling projects to use LEED information and tools for documenting compliance with LEED credits. The city of Pasadena, for example, requires developers to fill out LEED templates and to make them available to the city for review. Policies can also authorize agency officials to request green building documentation as appropriate, as is the case with Montgomery County’s ordinance and regulations.

In Austin, the green building program maintains a database that tracks the progress of each project and indicates whether a project has failed to submit required documentation for a particular green building measure. The program can then follow up with a notice to the project.

Specifying the timing of submittals. All of the mandatory policies described here include documentation requirements during the building permit stage, typically consisting of the green building checklist and supporting documentation. Several policies specify that a final, updated checklist is to be submitted

Green Building Documentation in Arlington County

In Arlington County, Virginia, the green building staff engages in detailed pre-construction review of projects at all key points in the county approval process. The county requires applicants to submit documentation during the site plan (discretionary review) process, and then to submit additional reports along with each of several building permit applications required for most site plan projects. Green building documentation includes an updated LEED checklist and additional items, such as material specifications, commissioning plans, energy modeling, etc., depending on the stage of the project. The county's green building manager reviews the documentation before each permit is issued, discusses the documentation with the applicant if necessary, and sends a letter to the permit official indicating approval.

prior to issuance of a certificate of occupancy. Where projects must undergo some form of detailed discretionary review by the municipality, that process may also provide an opportunity to discuss and review green building requirements with the developer. The green building measures approved at the planning stage can be made formal conditions of approval and incorporated into the project plans. This is a key component of green building review in Pleasanton and Arlington County.

Regardless of the timing of submittals, an important policy component is a directive that the relevant planning approval or building permit may not be issued until the municipality has approved the appropriate green building documentation.

Requiring project teams to include a green building professional. According to many officials, project teams that include an experienced green building professional produce higher quality green building documentation, which results in a more efficient municipal oversight process. For this reason, some jurisdictions have chosen to make this a requirement. Boston's green building policy requires that covered projects include a LEED Accredited Professional (LEED-AP) or other approved expert.

Pasadena's policy requires a LEED-AP, though the city has modified this requirement somewhat in practice by allowing projects to consult with the city's own LEED-AP consultant. Arlington County also requires projects to include a LEED-AP. In municipalities that do not require the use of a green building professional, officials commonly encourage projects to do so.

Designating specialized staff or consultants to review documentation. Some municipalities—particularly small and medium-sized jurisdictions—have found it effective to assign particular staff members the job of reviewing all green building documentation. Pleasanton has determined that this approach works well if the green building manager reviews documentation and works internally with the plan reviewers, who remain the agency's point of contact with the developers. Arlington County has designated staff (1.5 positions) for reviewing green building documentation and discussing green building measures directly with project teams. Pasadena has hired a LEED-AP consultant to review the LEED documentation submitted by projects.

Austin's green building program is unique in its size. The program has 20 staff positions, 17 of which work with individual projects. The program works closely with most participating projects from design through construction and commissioning. Green building oversight in Austin is wholly separate (though coordinated with) the city's regular building review process.

Determining how inspections will address green building measures. Four municipalities that have developed their own residential green building criteria specifically address the role of inspections in verifying compliance.

- The green building guidelines for Aspen/Pitkin County and for Boulder both indicate next to each green building measure whether the item is to be verified through plan check, city inspection or both. The guidelines further list the particular inspection that corresponds to each measure.

- Frisco has created a chart clarifying which party—the builder, city agency, or HERS provider—is responsible for verifying each of the city’s required green building measures.
- Austin’s green building program conducts two or three green building inspections for typical project, apart from the city’s regular building inspections. The program’s single-family checklist directs projects to schedule rough-in, pre-drywall, and final green building inspections.

Although inspections are an integral part of the building-approval process generally, only a few of the policies that cover commercial buildings explicitly address how green building requirements are to be handled in the inspection process. Austin conducts green building inspections for commercial projects, and Pasadena’s green building ordinance for commercial and multi-family buildings directs the city to verify that green building measures are being implemented at foundation and framing inspections. Montgomery County’s policy, which authorizes the agency to conduct inspections at any time necessary to ensure compliance, also requires applicants to meet with the county prior to construction to demonstrate that a process is in place for implementing and documenting construction phase credits.

Thus, in most municipalities, verification focuses heavily on project planning and design. During construction, green building measures are typically addressed as part of regular inspections, with the agency doing a spot check of items that are included in the plans, such as waterless urinals or the type of HVAC system. A few policies explicitly authorize the municipality to issue a stop-work order if an inspection reveals non-compliance with a project’s approved green building measures.

Emphasis on the planning and design stage may reflect the fact that primary responsibility for policy development and oversight lies outside of the building inspection agency. In such cases, municipal agencies have been reluctant to add to the existing workload of building inspectors by instituting new green building inspection requirements.

ENFORCEMENT TOOLS

Enforcement is an important consideration for policies that require projects to meet minimum criteria. While most of the policies described here contain some type of enforcement mechanisms, municipal officials generally report that they have not utilized those provisions. This may be due in part to the recent adoption of some of the policies, and in part to the fact that many policies have focused more on the planning and design phases than on construction and post-construction verification of green building features. Requiring documentation throughout the planning and permitting processes may increase the likelihood that projects meet the minimum green building requirements when they reach the final stages of the project. Policies can also include a variety of enforcement provisions to help ensure that the project as constructed meets the minimum requirements.

Requiring compliance prior to issuance of a certificate of occupancy or final building approval. Withholding of a certificate of occupancy (or equivalent) is the main compliance mechanism used by the mandatory green building policies described here. Nearly all of these policies state explicitly that the municipality is to ensure compliance before issuing a certificate of occupancy or similar approval.

Providing for temporary certificates of occupancy. While most policies do not require formal LEED certification, many programs strongly encourage

Requiring Post-Construction Documentation of Compliance

Montgomery County’s green building regulation requires a Green Building Credit Verification meeting prior to issuance of an occupancy certificate, during which the applicant must show that the project has obtained the required credits.

Pleasanton’s policy requires that the project submit documentation and a letter from its architect demonstrating that the approved green building measures have been incorporated.

projects to do so. Third-party certification can present a timing problem for jurisdictions that make occupancy certificates contingent on proof of green building compliance. Even where third-party certification is not pursued, the municipality itself may not be able to verify important green building measures, such as commissioning, prior to occupancy. Montgomery County's policy explicitly allows officials to issue a temporary occupancy certificate if a process is in place to implement and document post-construction phase credits. Officials in other jurisdictions indicate that in practice they may grant temporary certificates where additional time is needed to verify specific green building measures.

Requiring substitution of green building measures during construction. Several policies authorize the municipality to require projects to incorporate alternate green building measures during construction if the minimum green building threshold has not been achieved. Pleasanton's policy goes a step further, authorizing the city to require green operation and maintenance measures if a building failed to achieve the minimum rating required under the ordinance. In Austin, the city may order substitution of green building measures or it may order the non-complying project to carry out mitigation actions outside of the building project to compensate for the green building elements not included.

Requiring a performance bond. Washington, D.C. is the only mandatory policy included in this report to require covered projects to provide a performance bond. The ordinance allows projects to submit proof of compliance up to two years after receiving an occupancy certificate. If the building fails to demonstrate compliance with the minimum requirements, the bond—ranging from two to four percent of the building's cost, up to a maximum of \$3 million—is forfeited. Montgomery County's policy authorizes the use of performance bonds, but the law's new regulations do not include a bonding requirement.

Providing for monetary penalties. Almost half of the jurisdictions covered here are authorized to issue monetary fines for violations of green building

requirements. The green building ordinances of Frisco and Pasadena, for example, specifically reference the applicable penalties. In other cases, the municipal zoning/land use code contains general penalty provisions that could be applied to violations of the green building requirements adopted as part of those codes. Monetary penalties are rarely used, although officials in Austin are considering issuing a fine against a project that failed to comply with certain required green building measures.

RESOURCES FOR POLICY IMPLEMENTATION

The effectiveness of any green building policy is dependent not only on the substantive standards and the verification process established by the policy, but also on how resources are allocated to implement the policy. Ideally, a municipal policy will address this issue directly by conducting a formal fiscal analysis of the administrative costs required to implement the policy and by creating the mechanisms to cover those costs. A few of the jurisdictions included here established additional funding sources to implement their green building policies. Most programs have instead sought to absorb green building oversight within their existing staff and budgets, however some of these programs have taken other steps to minimize the increased burden on agency resources.

Austin is unique among the municipalities discussed in this chapter, in having a program that is run by the municipal electric utility. According to officials, the cost of the extensive green building services provided by the program, which has 20 funded staff positions, is offset by the reduction in capacity demand on the city's power plants.

Establishing new building fees to cover program management costs. Four of the mandatory green building policies authorize new fees to cover staff and operating costs for implementation.

- The policies of Santa Cruz and Washington, D.C. set the amount of the fee based on the square footage or valuation of the project.

- In Montgomery County, a formal fiscal analysis accompanying the green building ordinance detailed the estimated staff positions and other resources required, and the county council will consider a new building permit fee to cover those costs.
- In Calabasas, the green building ordinance also requires the city to establish a fee in an amount that will cover the cost of the city's review, though the amount of the fee has not been established yet.

Some policy makers expressly declined to provide additional staff or other resources when enacting their mandatory policies, in large part because they were reluctant to raise building fees to fund those positions. Some officials noted that the lack of additional resources made it more difficult to carry out the policy, and that such resources would be needed if the programs increased their focus on compliance. The city of Frisco, which established a set of mandatory green building measures for all residential projects, requested and received additional staff to assist in implementing the policy several years after the policy was first established.

Making staffing changes. Although most municipalities have not hired new staff specifically to oversee compliance, many have changed the responsibilities of existing staff in order to carry out the policy. Often, these changes serve to concentrate green building expertise and oversight in one or more staff members. In Boston, the building agency designated an environmental specialist as the point person for initial review of green building documentation. In municipalities that have a green building program in place at the time the mandatory policy is enacted, staff from that program may be able to help carry out the new policies. In Marin County and Arlington County, for example, green building program managers have played an important role in reviewing project documentation, thereby supplementing the work of the county planning and building staff. The city of Pleasanton's planning department has a green building manager, whose duties have expanded to include review of the green building documenta-

tion for all covered projects, making the oversight process more efficient.

Providing training for staff. For nearly all municipalities, training staff on the new policy is vital to ensuring effective implementation. Several of the municipalities included here have provided training to planners, plan reviewers, inspectors, and other staff. In Pleasanton, the city paid for training for the plan checkers who are hired on contract. In Boston, the city awarded a grant to a nonprofit organization, which has provided green building training to all city project managers.

Requiring project teams to include a green building professional. As noted above, Boston, Pasadena, and Arlington County require that projects use a LEED-AP, which helps the municipality make more efficient use of its staff resources.

GREEN BUILDING PROGRAM EVALUATION

Evaluation is an important part of any municipal green building program. Evaluating the effectiveness of a green building policy is challenging primarily because of the resources required to conduct the evaluation and also because of the practical difficulties in evaluating the performance of private buildings. With limited exceptions, the mandatory policies described here do not address evaluation explicitly, and the municipalities have focused their implementation efforts mainly on oversight during the design and construction processes.

Reviewing and revising green building policies. Many program officials noted the importance of reviewing municipal green building policies within a few years of enactment. All three policies enacted in 2001, along with a few other policies, undertook such a review and raised their green building standards to reflect changes in building practices and codes.

Another important reason for reviewing these policies was to gauge compliance. The city of Pleasanton conducted an informal review of some of

Evaluating Green Building Results in Austin

Austin's green building program requires that commercial and multi-family projects submit modeling or calculations on energy and water use and on construction waste recycling, and the city compiles this information. For single-family homes, the program has used its project database to determine the measures included in a typical home and have used that information to calculate energy and water savings for homes certified under the program.

the buildings permitted and constructed under the green building ordinance and found that certain measures included in project checklists had not necessarily been incorporated into the buildings. This review led the city to change its process for reviewing projects. Aspen and Frisco conducted similar informal reviews, which led those programs to strengthen their green building criteria and verification requirements for new homes.

Analyzing the types of green building measures included in completed projects. Where policies are based on a flexible, point-based set of green building criteria, municipalities do not control which green building goals and measures are incorporated into new buildings. Although many officials have a general sense of what types of green building measures are commonly used, only Austin has analyzed this information in a formal manner. Where municipalities receive a project's green building information electronically, as many do, these databases are a potential tool for identifying program impacts and strengthening refining green building criteria.

Measuring post-occupancy benefits of new projects. Few of the programs included here have measured the environmental or health benefits of homes built under their mandatory policies. Austin has taken the most significant steps in this regard. The city of Frisco, which has requirements that track closely the Energy Star program, has used Energy Star calculations to estimate the energy savings of homes built to the city's standards.

A couple of policies authorize evaluation measures, but this authority has not yet been applied. For example, the Washington, D.C. ordinance charges the city's Green Building Advisory Council with evaluating the effectiveness of the policy, including the "impact on the District's environmental health." Pleasanton's policy authorizes the city to require that applicants submit documentation relating to the green building measures after one year and/or five years of occupancy, but city officials have not required this documentation to date.

INCENTIVES TO COMPLEMENT MANDATES

Municipalities with green building mandates can establish incentives that encourage projects to exceed the minimum green building standard. While some municipalities have been unwilling or unable to offer incentives, several policies include various incentives as an integral component of their mandatory policies.

Providing fee rebates and other monetary incentives. As noted above, Montgomery County expects to provide fee rebates if a covered project will achieve LEED certification and thereby reduce the oversight burden on municipal staff. Arlington County has established a green building fee that is used for outreach and education, rather than program management, in an amount that is comparable to the cost of LEED certification. Although the county provides similar oversight to all projects, officials note that the fee is not charged to projects that pursue LEED certification.

Two cities provide for other direct monetary incentives. D.C.'s law authorizes a grant program for projects that meet the law's mandatory green building criteria during the phase-in period and for non-covered projects that comply with the mandates. Thus far, the District has not created the grant incentives program, which is subject to the availability of funds from the newly-created Green Building Fund. In Pasadena, the city-owned utility provides rebates to projects that achieve LEED certification, in addition to other grants for specific energy measures. The

LEED grants range from \$15,000-\$30,000, depending on the level of certification achieved.

Offering expedited review. The policies of Santa Cruz and Washington, D.C. offer expedited review for covered projects that exceed the city's minimum green building requirements (and, in the case of D.C., for projects that comply with those requirements in advance of the effective date of the policy). These expedited review incentives are described in Chapter Three.

Establishing other incentives. In addition to providing a fee rebate, Arlington County offers a density bonus for covered projects that will achieve LEED certification, and this incentive is described separately in Chapter Four. Santa Cruz not only offers expedited review, but also provides a green building plaque and certificate for projects that achieve the highest scores on the city's green building checklist. This promotional and marketing tool has proven to be a powerful incentive for residential projects in that city.

POLICIES THAT PROVIDE EXPEDITED REVIEW FOR GREEN BUILDING PROJECTS

One widely-used incentive to encourage green building is the offer of faster building review by the municipality. This chapter discusses 10 municipal policies that provide expedited review as an incentive for private sector green building. These seven cities and three counties, along with the year in which their policies were enacted/revised, are:

- Scottsdale, AZ (1998/2006)
- Arlington County, VA (2003)
- Chicago, IL (2005)
- Santa Monica, CA (2005)
- Sarasota County, FL (2005)
- Santa Cruz, CA (2006)
- Anaheim, CA (2006)
- King County, WA (2006/2007)
- San Francisco, CA (2006)
- Washington, DC (2006)

These jurisdictions, which represent most regions of the country, are primarily medium to large in population.

Population	Jurisdiction
50–100,000	Santa Cruz, Santa Monica
200–400,000	Arlington County, Scottsdale, Anaheim, King County, Sarasota County
550–750,000	Washington, D.C., San Francisco
Over 2 million	Chicago

Four of the municipalities discussed here have enacted formal legislative measures (ordinances, codes, resolutions, etc.) establishing the expedited review incentive. The others have created written administrative guidelines or criteria for participating

in the incentive program. Scottsdale is unusual in amending its building code to affirm that the municipal green building criteria established for the incentive must be met as long as a building project is participating in the city's green building program.

This chapter discusses the key elements of these expedited review policies. A number of the policies include other incentives to complement expedited review, and those incentives are described briefly.

SCOPE OF COVERAGE— TYPE AND SIZE OF BUILDINGS

The policies differ in their scope of coverage, reflecting the opportunities and constraints presented by the existing municipal building review process, as well as the type of development prevalent in the community. Two of the policies—Santa Cruz and Washington, D.C.—are part of municipal legislation that both establishes mandatory green building criteria (see Chapter Two) and incorporates incentives to encourage projects to exceed those minimum standards.

Determining the types of buildings to cover. Most of the policies described here cover both commercial and residential projects. The two earliest policies—Scottsdale and Arlington County—apply only to residential properties. Scottsdale has chosen to exclude commercial and large, multi-family projects because of their greater complexity and lengthier review process. Arlington County has a separate, detailed green building policy establishing requirements and incentives for commercial and multi-family projects. (See Chapters Two and Four.) In

unincorporated King County, where development is mainly residential, the expedited review incentive is also limited to residential projects.

Determining the size of buildings to cover. In contrast to mandatory policies, which often apply only to buildings above a certain minimum size thresholds, expedited review policies generally do not include explicit minimum or maximum size limits. The exceptions to this rule fall mainly in the residential sphere. Arlington County limits the program to single-family homes, while Scottsdale limits the participation of multi-family projects to small buildings. These incentive programs thus focus on projects that involve a less complex municipal review process.

Although most of the policies covering both commercial and residential buildings do so without stated size thresholds, some (*e.g.*, San Francisco, Santa Monica, Chicago) are geared primarily toward commercial and multi-family properties that involve lengthier review processes and thus benefit from the shorter time frames provided under the policies. In these programs, the shortened review time is not a significant benefit to small residential projects that already receive permits fairly quickly in most cases.

NATURE OF THE EXPEDITED REVIEW INCENTIVE

The way in which a municipality structures an expedited review program depends on existing review processes, program resources, and the nature of development in the jurisdiction. The policies discussed here vary somewhat in terms of the stage of review that is expedited and the way in which agencies accomplish the faster processing.

Specifying the stage of review. All of the policies discussed here establish expedited processing at the plan review stage, shortening the time it takes to assign a project to a plan reviewer, as well as the time it takes to provide the initial and/or subsequent reviews.

Pre-Permitting Assistance in Chicago

A key component of Chicago's expedited review incentive is the provision of comprehensive permit coordination services by experienced Green Permit program staff. Larger projects contact the Green Permit program a few months prior to submitting a building permit application, and program staff work closely with the project to discuss green building measures and to help coordinate the requirements of other city agencies. The program reviews a project's green building documentation and determines eligibility for expedited plan review prior to submission of the building permit application.

A few of the policies also expedite processing at earlier, pre-permitting stages. Although San Francisco offers expedited plan check, the central focus of its policy is on expediting the environmental plan review for complex projects. While Chicago's policy applies to the building permit stage of a project, an important part of the city's policy is to provide pre-permitting assistance to qualified projects during the planning stages. (See text box.) Sarasota County, which began with an exclusive focus on the plan check stage, expanded the program to include site and development plan review, as well as review of re-zone and special exception petitions. Sarasota County also provides green building projects with the highest priority for inspections, often enabling projects to request specific inspection times.

Establishing expedited turn-around times. About half of the policies reviewed here specify in writing the turn-around time for review—in days or weeks—that will be provided to qualifying projects. Most of the remaining policies establish general time frames as a matter of practice. Overall, the jurisdictions differ somewhat in the magnitude of the time savings provided to qualifying projects. A few municipalities provide 10–25 percent faster review times, and several estimate that the difference is about 50 percent. In San Francisco, the city offers two-week assignment to an environmental planner, a stage that otherwise may take from six-nine months.

Moving projects to the front of the line. All of the policies reviewed here move qualifying projects to the front of the line in order to expedite review. In some cases, such as San Francisco, this results in large time savings in the initial step of assignment to a reviewer. San Francisco's Planning Department assigns each environmental reviewer only one expedited review project at a time as part of their overall workload, thereby limiting the number of expedited projects that can be processed by the program.

Facilitating inter-agency permit review. In most jurisdictions, expedited review also involves working with other city agencies to resolve issues that could slow down the review process. As noted above, a primary benefit of Chicago's incentive program is the assistance that is provided to a project during the multi-agency review that occurs prior to building permit application. Experienced staff work with green building projects, helping them to navigate the planning process and coordinating the information requirements of various agencies. In Washington, D.C., the green building law establishes expedited review within the city's building permit agency and also calls on the city to develop expedited review policies for other city agencies involved in the permitting process.

ADDITIONAL INCENTIVES TO COMPLEMENT EXPEDITED REVIEW

Most of the policies included here integrate expedited review with other incentives for green building projects. Jurisdictions such as Anaheim, King County, Scottsdale and Arlington County include a package of incentives for projects participating in the municipal green building program. The following paragraphs review some of the additional incentives that are provided to projects that qualify for expedited review.

Reducing permit fees. Three policies discussed here waive or reduce building fees to projects that qualify for expedited review.

Providing Rebates and Other Monetary Awards

A few programs provide monetary reimbursement for projects that achieve third-party green building certification. In Anaheim, for example, projects that are LEED-certified may receive between \$15,000–30,000 from the municipal utility, depending on the level of certification. Projects that pursue a different third-party certification may be reimbursed \$1,000 per home, up to a maximum of \$6,000 per residential development.

King County provides competitive grants to single-family residential projects that achieve certification through the Built Green residential rating system, and the city also offers competitive grants of \$15,000–25,000 for projects that obtain at least a LEED silver-level certification. In Santa Monica, the city has set aside funds to provide grants to 10 commercial and multi-family residential projects that obtain LEED certification, providing awards of \$20,000–35,000, depending on the level of certification.

- Chicago budgeted funds to provide two tiers of fee reductions (a \$25,000 reduction and a 100 percent reduction) to larger projects that exceed the minimum green building requirements for expedited permitting. The city plans to revise its fee structure in 2008, and the revision will have the effect of making the financial incentive applicable to smaller projects as well.
- King County provides several hours of project management services at no cost to green building projects. Smaller homes are eligible for a greater number of hours, as are commercial projects that achieve a higher green building standard.
- Anaheim's plan check fee reduction (up to \$50,000 per project) is funded through the municipal utility.
- Sarasota County set aside a total of \$50,000 to provide permit fee reductions of up to \$1,000 per project (capped at \$5,000 to any single person), but the city recently discontinued the fee reduction program due to economic conditions.

Offering promotional incentives. Santa Cruz provides a green building award to projects that achieve a higher green building standard than is

required to receive expedited permitting. According to officials, the promotional benefits of receiving the green building plaque and certificate have been a strong incentive to builders. Arlington County and Scottsdale also provide public-recognition incentives to projects that participate in their green building programs, including certification of projects and various promotional materials.

Providing free technical assistance. Many municipalities around the country offer technical assistance and other educational services to projects that seek to incorporate green building measures. In Anaheim, the municipal utility provides free green building technical assistance through a third-party consultant with whom the utility contracts. Any developer that seeks to incorporate green building measures into its project may receive up to 10 hours of free consultation. King County also provides free green building technical assistance to projects that wish to incorporate green building measures before they apply for a building permit. This assistance is provided through the permitting agency's green building program coordinator, whose time is funded through the county's solid waste program. Other programs, such as Arlington County, also provide technical assistance through their well-established green building programs.

RESOURCES TO IMPLEMENT THE EXPEDITED REVIEW INCENTIVE

Expedited review impacts staff resources by requiring both faster processing and the review of additional green building criteria. While few of the programs discussed here hired new staff to carry out the incentive policy, most made some type of staffing change to ensure that staff members are available to conduct the expedited review and to provide general oversight and management of the program. Training for staff members also has been an important element for some of the programs. As noted later in the chapter, most programs require third-party certification, which helps to reduce the burden on the municipality for verifying compliance.

Hiring new staff. At least one program hired new staff specifically to manage the expedited review program. Chicago hired a manager and recently added a second staff person for its Green Permit program, which processes a large number of commercial and residential projects each year. The city also funds outside consultants to assist in reviewing projects. Santa Cruz also recently hired an assistant for the city's deputy building official, who oversees review of all green building projects. Washington, D.C.'s green building law is the only policy that explicitly provides for increased staffing for the incentive program. That law establishes a green building fee and directs the District to hire new staff positions, including a permit reviewer and an inspector, primarily to expedite green building permit applications.

Making staffing changes. Several programs made staffing changes in order to designate experienced staff to manage the expedited review program. Such staffing changes can help make the review process more efficient and can ensure overall guidance and support to the initiative.

- A few programs (Santa Cruz, Scottsdale, San Francisco) upgraded an existing staff position to incorporate the responsibility for managing and/or implementing the new program.
- Two municipalities (Scottsdale, Arlington County) had green building programs already in place when their incentive policies were enacted, and staff from those programs have played an important role in coordinating and assisting the expedited review process.
- In Arlington County, the municipality also provided training to one plan reviewer and one building inspector who have been assigned to track all green building projects accepted into the expedited review program.

Providing training for staff. In addition to making staff changes, some municipalities have emphasized staff training as a key element for ensuring effective implementation. San Francisco's building inspection agency provided training for its building inspectors, while King County building staff also

Providing Financial Incentives to Develop Municipal Green Building Expertise in Sarasota County

Sarasota County provides a financial incentive to its employees to obtain green building qualifications that will increase their capacity to assist builders and to facilitate the review of green building projects. The municipal compensation structure allows for salary increases if employees obtain certain additional qualifications. Following establishment of the green building program, the city added a salary incentive for LEED-Accredited Professional certification (\$1,000 per year), as well as for Florida Green Building Coalition “certifying agent” designation (\$500 per year). According to officials, a few building and planning staff members have obtained LEED-AP status, and all inspection and plan review staff have been designated as certifying agents through the FGBC program.

have received considerable green building training. Sarasota County has provided incentives to its staff to be trained and accredited under the third-party green building rating systems incorporated in the county’s green building policy. (See text box).

GREEN BUILDING CRITERIA

Policies Using Municipal Residential Green Building Criteria

Four of the ten municipalities discussed here (Scottsdale, Arlington County, Santa Cruz and Chicago) incorporated their own residential green building criteria into the incentive program. Chicago’s program uses the eligibility criteria and verification process of a pre-existing city program, Chicago Green Homes.

Including optional and required measures. All of these policies use flexible green building frameworks containing a wide range of optional measures, and two also include required measures to ensure that priority goals are addressed in all green building projects. Scottsdale’s revised criteria include mandatory measures in most environmental and health categories, including a variety of energy efficiency and

indoor environmental quality measures, as well siting elements that address the desert climate. The Chicago Green Homes criteria include a few specific required items, as well as a requirement that projects achieve a minimum point total in the Energy Efficiency category.

Allowing use of alternative rating systems. Since the development of the early residential green building programs, third-party rating systems such as LEED-Homes have become more firmly established. Chicago’s program indicates that it would accept projects pursuing certification under the LEED-Homes system, in lieu of participating in the Chicago Green Homes program. Officials in Arlington County note that the municipality may consider revising the program to incorporate other residential third-party rating systems. Municipalities can also integrate into their own guidelines the criteria of third-party systems such as Energy Star and the Energy Star/Indoor Air Package.

Policies Using Third-Party Green Building Criteria

Eight of the ten expedited review policies use third-party green building criteria to determine eligibility. All of these use the LEED system except King County, which uses the Built Green residential criteria. Not all policies use the LEED criteria exclusively. As noted above, Chicago and Santa Cruz have their own residential criteria, while they use LEED for commercial projects. Sarasota County allows projects to use either the LEED system or the rating system of the Florida Green Building Council. Anaheim is unique in allowing projects to use any third-party green building certification program, though to date participating projects have used either LEED (commercial) or the GreenPoint Rated system (residential).

Determining the green building threshold for eligibility. Most of the projects that incorporate the LEED system require projects to meet the criteria for the LEED *certified* level. San Francisco, however, requires that projects achieve LEED gold-level certification in order to qualify for expedited review.

In Chicago, the city uses the LEED certified level to qualify commercial projects for the basic expedited review incentive, but establishes tiered fee reductions for projects that achieve higher levels of LEED certification.

Modifying third-party criteria to reflect local priorities. A few programs have modified third-party criteria to reflect local priorities. Chicago has developed a menu of green building measures to supplement the LEED and Chicago Green Homes criteria. Projects participating in the incentive program must incorporate one, two or three of these items, depending on the level of financial incentives sought. The menu includes: exceptional energy performance, green roofs; renewable energy; transit-oriented development; water management; exceptional bike parking; and natural ventilation.

Although King County has not modified the Built Green residential criteria, the county helped to develop these regional standards. The criteria establish priorities through the considerable number of required measures in the areas of Site/Water, Energy, Indoor Air Quality and Materials. To encourage smaller homes, projects below a certain size require fewer points to be certified; larger homes, in addition to achieving the specified point totals, must achieve a greater number of points in the Energy and Materials categories.

DOCUMENTATION AND VERIFICATION OF COMPLIANCE

Since expedited review incentives are provided before projects are built, it is important for policies to establish mechanisms to document and verify that a project is designed to meet minimum green building criteria.

Requiring third-party green building certification. Most of the policies require that projects will achieve third-party green building certification and are thus similar in relying heavily on the oversight process of the third-party organization. Scottsdale,

Arlington County and Santa Cruz use their own green building criteria, and their policies include more detailed processes for municipal agencies to verify that projects meet the standards.

Determining the timing of the application and documentation. Although all of the policies expedite review at the building permit stage, about half require that applicants for expedited permitting contact municipal agencies prior to submitting their permit application. In addition to San Francisco, which provides expedited processing at the environmental review stage, Chicago emphasizes early communication with project teams. Projects generally submit Green Permit applications and documentation several weeks before applying for a building permit, and the program aims to complete its initial review of the documentation within one week. In Anaheim, the Green Building program often works with green building projects prior to the building permit application, though this is not a formal requirement. Scottsdale and Arlington, which do not require third-party certification, require projects to submit information and to meet with program officials to discuss eligibility prior to submitting the building permit application.

Specifying the documentation required with the application. The main form of documentation required is the checklist or scorecard from the applicable green building rating system. Two municipalities, Chicago and Santa Monica, require that projects submit proof of LEED registration along with these scorecards.

Several policies call for additional documentation on how the project will achieve the selected green building measures. Chicago relies heavily on a detailed project narrative, and the city provides a model narrative for projects to use. Santa Cruz's green building policy states that the plan set must show clearly the green building measures, and the program requires a separate table on either the title sheet or the index sheet detailing the green building measures and referencing specific plan pages. Most programs also require that projects complete an

agreement affirming the requirements of the program and, in some cases, specifying the consequences for failing to meet the requirements.

Designating specialized staff or consultants to review documentation. Most of the municipalities discussed here have designated staff with green building expertise to review the green building documentation submitted by a project applying for expedited permitting. Santa Monica's green building program manager, in the city's environmental office, reviews this documentation to determine eligibility. As noted earlier, Chicago hires a consultant to review LEED documentation, and consultants also review documentation for the city's Green Homes program. In Santa Cruz, the deputy building official reviews the green building documentation for all new projects. Arlington County and Scottsdale have green building program staff who meet with projects initially to determine eligibility, and they also have designated staff to conduct permit reviews for these projects. In Sarasota County and King County, which use regional green building rating systems, plan review staff and project managers are generally knowledgeable about those systems and conduct the reviews of green building documentation. Sarasota County also has two LEED-APs who review projects using the LEED system.

Determining how inspections will address green building criteria. Some of the expedited review policies specify how building inspections will be used to verify compliance. Arlington County's expedited review program specifically requires two inspections (pre-drywall and near completion) to verify compliance, and the county tries to integrate these with the regular inspection process. Projects must submit a final inspection report following completion. Scottsdale's green building criteria designate certain measures as requiring city inspection, and the city requires builders to certify those measures that are not inspected by the city. The city has developed a process for completing inspection cards and posting them on the job site, in order to integrate green building inspections with regular inspections. In Santa Cruz (which has mandatory green building

criteria along with incentives), the program identifies green building measures that require inspection and stamps plans accordingly.

Requiring proof of compliance upon project completion. A few of the policies described here explicitly require participants to submit proof of green building certification following project completion. Chicago requires proof of certification within 180 days. Arlington County requires submission of a final checklist and supporting documentation, as well as the final inspection report.

ENFORCEMENT

The programs discussed here have not had significant experience applying enforcement measures to projects that fail to comply with the green building criteria or that seek to withdraw from the program after receiving expedited review. This may be due in part to the fact that some programs are only two or three years old, and in part to the emphasis of the programs on early verification that projects will meet the green building criteria. In addition to the mechanisms described below to address non-compliance, programs that have financial incentives to complement expedited review may require the return of those financial benefits.

Requiring inclusion of alternate green building measures. For programs that do not require third-party certification, the municipality plays a larger role in overseeing green building compliance prior to issuance of a certificate of occupancy. In Scottsdale, for example, the city may require substitution of green building measures during the construction phase if the project no longer meets the minimum criteria. If a project withdraws from the program or changes its plans, it must re-submit for plan review, which involves additional fees and which adds one or two weeks of review time. In Santa Cruz, the city conducts an audit with the project proponent following the final inspection and may require substitution of green building measures, if necessary, to meet the minimum standard for the incentive program.

Prohibiting future participation in the program. In jurisdictions such as Chicago and Sarasota County, project proponents who fail to comply with the requirements of the incentive program are prohibited from future participation. Officials note that this is a considerable deterrent for larger builders.

Establishing financial penalties. A few programs provide for financial penalties, although these penalties have not been utilized to date. Washington, D.C.'s policy establishes a *bond* for all programs participating in the incentive program and requires forfeiture of the bond if the project fails to meet the required green building criteria. Santa Monica's policy authorizes the city to establish a *monetary fine* for non-compliance, though the city has yet to do so. In San Francisco, participating projects that fail to achieve LEED gold certification can be required to appear before the Planning Commission, and city officials would seek *environmental mitigation measures* to offset the measures that were not included in the project.

GREEN BUILDING PROGRAM EVALUATION

Evaluation of a green building incentive policy is important to determine whether the policy as implemented is effective in advancing green building goals. Most of the expedited review programs described here have kept track of the number of participating projects, but otherwise have not carried out formal evaluation of program implementation or results.

Reviewing and revising green building criteria. Municipalities can provide expedited review for only

a portion of all new projects, since by definition the benefit to projects is in receiving review that is *faster* than the norm. Thus, policies should be reviewed periodically to gauge participation and to ensure that the minimum criteria for eligibility adequately reflect advancing building practices in the community. Chicago has had substantial participation in its Green Permit program and recently increased the green building thresholds for participation. Scottsdale, which has one of the oldest programs, recently revised its green building criteria to reflect code changes and building industry practices. Arlington County may be considering similar changes in the near future.

Reviewing the effectiveness of the expedited review process. Municipalities should also review their experiences administering the expedited review process, both to identify areas for change and to document successes. Scottsdale has reviewed its program to determine how often the city was meeting its stated three-week turn-around time.

Analyzing the green building measures included in participating projects. Chicago's Green Home program maintains a database with information about participating projects' green building measures, and the Green Permit program is beginning to maintain this information for LEED projects as well. The program is considering requiring participants to submit information on the building's water and energy use. In D.C., which has not yet begun implementation of its incentive program, the green building law charges the city's Green Building Advisory Council with evaluating the effectiveness of the policy, including the "impact on the District's environmental health."

POLICIES THAT PROVIDE DIRECT FINANCIAL INCENTIVES FOR GREEN BUILDING PROJECTS

Grants, Fee Waivers, Tax Breaks and Bonus Development

While the last chapter described the indirect financial incentive of expedited review, this chapter includes policies that establish direct financial incentives, including grants, fee waivers, tax breaks, and allowances for bonus development. Like most of the expedited review policies, all of these financial incentives are provided in exchange for third-party green building certification. Because the report covers a small number of these policies, they are discussed only briefly below. Additional information is contained in the Policy Summaries provided in the appendices.

GRANTS

Many jurisdictions around the United States provide grants, rebates, and other forms of monetary payment to projects that incorporate green building features. Most monetary incentives are targeted to specific environmental goals, such as energy or water conservation. This report includes four policies that provide grants to projects that incorporate a *broad-based approach* to green building. More specifically, these policies offer grants to cover the costs of third-party green building certification. (In addition to these four programs, Washington, D.C.'s green building law provides for the establishment of a green building grants program, though that program has not been developed yet.)

Jurisdiction	Population	Year of Policy
Santa Monica, CA	88,244	2004
Pasadena, CA	144,264	2006
Anaheim, CA	344,141	2006
King County, WA	364,498	2006

Except for Pasadena, these municipalities provide grants in conjunction with their expedited review policies, which are described in Chapter Three and Appendix B. For this reason, and because detailed guidelines for these incentives are available on the municipal program websites, these four grant programs are not described in separate Policy Summaries in the appendices to the report.

Establishing the scope of the incentive. Each of these four jurisdictions provides a monetary grant to projects that achieve third-party green building certification. Each jurisdiction provides a rebate for LEED certification, typically covering commercial and multi-family residential projects. Anaheim also provides a rebate for projects that use alternate rating system, while King County has a separate program that provides grants to projects certified under the residential Built Green program. As part of King County's LEED grant program, the county has changed the LEED criteria slightly to make certain LEED optional credits (in the areas of construction

waste recycling, landscape irrigation, and building water use) prerequisites for receiving funding.

Determining the amount of the incentive. These incentives aim generally to reimburse projects for third-party certification fees, though they may not address other added costs of meeting third-party criteria. All of the programs provide tiered awards (ranging from \$15,000-35,000), with increasing amounts for higher levels of LEED certification. The grants for certification through other green building rating systems are smaller, reflecting lower certification costs associated with alternate rating systems.

Documenting and verifying compliance. Most of the programs provide detailed guidance, including application materials and criteria. The programs vary in terms of the timing of applications and approvals. In general, most projects must submit the relevant green building checklist and complete an agreement form, and ultimately must submit proof of certification.

Creating enforcement mechanisms. Santa Monica and King County make all or part of the funding available prior to project completion, and these policies include measures to ensure repayment of funds if the project does not ultimately achieve green building certification.

FEE WAIVERS

Three of the jurisdictions covered in the report reduce building fees as an incentive for projects to obtain third-party green building certification. (In addition to these programs, Montgomery County will consider establishing a fee to cover implementation of its green building requirements, and may waive the fee for projects that achieve LEED certification.)

Jurisdiction	Population	Year of Policy
Arlington County, VA	199,776	2004
Chicago, IL	2,896,016	2005
Anaheim, CA	344,141	2006

These fee waivers are provided in conjunction with the municipalities' expedited review policies, which are discussed in Chapter Three and Appendix B, and are thus not described in separate Policy Summaries in the appendices to the report.

Establishing the scope of the incentive. Each of these three jurisdictions waives or reduces fees for projects that achieve third-party green building certification. In Arlington County, the green building fund fee is waived for projects pursuing LEED certification. Projects achieving certification in Chicago (LEED or Chicago Green Home) or Anaheim (any formal third-party system) receive a reduction or waiver of the plan check fee.

Determining the amount of the incentive. The amount of the fee reduction varies. In Arlington County, the entire green building fund fee of \$0.03/ft² is refunded, while in Anaheim, the plan check fee is reduced up to \$50,000. Chicago provides two levels of fee reduction, up to a 100 percent waiver, based on the level of green building achieved.

Documenting and verifying compliance. The programs vary in terms of oversight and review of green building documentation, as reflected in the Policy Summaries included in Appendices A and B.

Creating enforcement mechanisms. Although none of the programs have carried out enforcement actions for non-compliance, each policy includes some type of enforcement measure. Anaheim requires applicants to sign an agreement stating that if the green building certification is not achieved, the applicant is responsible for reimbursing all fees that were waived. In Chicago, participating projects that fail to meet the green building standards are barred from future participation in the incentive program and may be required to refund fees. In Arlington County, projects achieving LEED certification may also be awarded bonus density (see below), and the county has established a bonding requirement to ensure compliance with that incentive program.

TAX BREAKS

The three tax incentive policies reviewed here were enacted within the last two years and are in the early stages of implementation.

Jurisdiction	Population	Year of Policy
Chatham County, GA	241,411	2006
Baltimore County, MD	787,384	2007
Cincinnati, OH	302,616	2007

Municipal tax incentives are often used to target development in certain geographic areas. In most cases, including the policies reviewed here, local incentives are developed within the context of state-wide mandatory or optional tax incentive policies.

Establishing the scope of the incentive. Though the three policies all provide a reduction in property taxes, they vary in scope, reflecting the underlying goals and existing tax structures within the jurisdictions. Chatham County's incentive, which aims to bring more sustainable development to specific Enterprise Zones that are environmentally contaminated, is the most restrictive in terms of geographic scope (and minimum green building criteria). The city is considering broadening the eligibility criteria, as the policy has not succeeded in attracting green building to the areas targeted in the ordinance. In Cincinnati, the incentive is tied to the Community Reinvestment Areas program, however the entire city has been designated as a reinvestment area. The green building tax policy thus applies throughout the city, and the program has already received applications for the incentive.

Determining the amount of the incentive. Factors affecting the amount and duration of the tax incentive include the type of project (residential vs. commercial, new construction vs. rehabilitation) and the level of green building achieved. Cincinnati's green building incentive supplements an existing property tax exemption by increasing the duration of

the exemption and by offering the exemption to commercial properties regardless of financial need. Baltimore County revised its original policy to reduce the amount of its tax incentive in order to more accurately reflect the added costs for builders of achieving green building certification. The Baltimore policy also establishes a \$5 million cap on the amount of tax reductions that may be awarded under the program.

Establishing green building criteria. Each of the policies requires LEED certification, incorporating the LEED criteria without modification. Policies vary in the level of certification required, from certified (Cincinnati) to gold (Chatham County). Baltimore County provides tiered incentives for projects achieving silver through platinum-level certification.

Determining the types of buildings covered. Cincinnati's program is open to any type of project, while Chatham County's program is limited to business development. Baltimore County's program is limited to commercial projects, which could include large multi-family buildings that obtain LEED certification.

Documenting and verifying compliance. Because tax incentives are provided following project completion, the administrative process for verifying compliance is more streamlined than with other types of incentives. Where programs use a third-party rating system, municipal oversight may consist largely of receipt and review of proof of certification. In cities such as Cincinnati, where the incentive is part of a larger municipal tax incentive program, there may be additional documentation and review requirements.

BONUS DEVELOPMENT

Bonus development, which is often used as an incentive to promote affordable housing, refers to the ability to develop a particular property to a greater density or height than is normally allowed under the zoning/land use code. This report includes two poli-

cies that provide a bonus development incentive to projects that meet green building criteria.

Jurisdiction	Population	Year of Policy
Arlington County, VA	199,776	2004
Seattle, WA	562,106	2006

Establishing the scope of the incentive. Each of these incentive policies was established in the context of a broader initiative. In Arlington County, the bonus development incentive applies throughout the county, and is implemented in conjunction with a mandatory green building policy that does not require formal LEED certification. Projects that do achieve LEED certification may receive the bonus density, along with a waiver of building fees. In Seattle, the green building incentive is part of a larger program of incentives aimed at encouraging commercial and residential development in the city's downtown areas.

Determining the amount of the incentive. The policies provide increases in floor area ratio (FAR—the ratio of the of total building floor area to the area of its zoning lot) in amounts that vary based on the level of green building achieved (Arlington County) or the type and location of the project (Seattle). Seattle also provides height bonuses depending on the type and location of the project. The policies provide considerable financial benefits to eligible projects, which can generate income from the increased developed space well into the future.

Establishing green building criteria. Each of the policies requires LEED certification, incorporating the LEED criteria without modification. Seattle requires silver-level LEED certification, while

Arlington requires at least the certified level, but provides additional FAR increases for projects achieving silver, gold, or platinum certification.

Determining the types of buildings covered. Both programs cover large commercial and residential development projects.

Documenting and verify compliance. Arlington County's bonus development incentive is implemented along with mandatory green building provisions, and the county undertakes extensive review of green building documentation for all covered projects. Seattle's incentive program requires projects to commit to LEED certification through a letter of intent, but the city relies primarily on proof of final LEED certification in order to verify compliance.

Providing enforcement mechanisms. Both policies contain significant enforcement measures. Arlington County requires a performance bond, which is calculated to capture the economic benefit of the increased bonus density. Seattle's policy establishes a penalty formula for projects that fail to earn a LEED silver rating. Under the policy, the fewer points achieved by the project, the greater the penalty.

Evaluating the program. Each of these programs emphasizes the importance of reviewing the incentive periodically to ensure that the policy is effective at achieving the environmental goals of the municipality. In Seattle, the policy includes a five-year sunset provision, at which time the city will re-evaluate whether projects are addressing the city's key environmental goals. Arlington County also incorporated a five-year sunset provision, which expires in 2008. Officials expect to review the program and to consider whether to increase the minimum criteria for eligibility.

Appendix A

MANDATORY POLICY SUMMARIES

Arlington County, VA
Aspen/Pitkin County, CO
Austin, TX
Boston, MA
Boulder, CO
Calabasas, CA
Frisco, TX
Long Beach, CA
Marin County, CA
Montgomery County, MD
Pasadena, CA
Pleasanton, CA
Santa Cruz, CA
Washington, DC

ARLINGTON COUNTY, VIRGINIA
Pop. 199,776

OVERVIEW OF POLICY

Arlington County strengthened its green building program in 2003 to encourage private commercial projects to incorporate green building measures. This program was formalized in policy through the adoption of an amendment to the county's zoning ordinance. The ordinance requires that applicants for a use permit or site plan approval submit a LEED scorecard indicating the green building measures they intend to include in their project. LEED certification is not required, though the county has established two incentives -- fee rebates and density bonuses -- to encourage formal certification.

The county also has established a separate expedited review program for single-family residential development projects. (See Policy Summary in Appendix B.)

CITATION

Arlington County Zoning Ordinance, Section 36

DATE

2004

IMPLEMENTING AGENCIES

Department of Environmental Services
Department of Community Planning, Housing and Development

TYPES OF BUILDINGS

Commercial, Residential

SIZE OF BUILDINGS

The policy applies to buildings that go through the county's site plan process, a discretionary review process that applies to larger projects seeking to incorporate a form, use or density beyond what is permitted by right in the county code. §36 (H)(3). According to officials, most commercial and large-scale residential development in the county goes through this process, and there are about a dozen projects at any one time undergoing active review for compliance with the green building requirements.

GREEN BUILDING CRITERIA

Framework. Arlington County's green building policy uses the LEED rating system. Initially the county modified the commissioning requirement slightly for projects that are not obtaining LEED certification, though the county is moving back to using the LEED criteria for commissioning.

The county also added Energy Star requirements relating to appliances and lighting in residential projects.

DOCUMENTING AND VERIFYING COMPLIANCE

Information about the county's policy is available in a program description available on the county's web site. See <http://www.arlingtonva.us/> (search "Green Building Incentive.")

Arlington County employs green building staff who engage in detailed pre-construction review of projects subject to the policy. According to officials, the county's green building review process is the same for all covered projects, regardless of whether a project is pursuing LEED certification through the USGBC.

Green Building Professional. Although explicitly stated in the zoning ordinance, the county requires that projects subject to the policy include a LEED accredited professional on the project team. According to officials, this has not been a controversial requirement, as most architecture and engineering firms in this area have LEED-AP on staff. Although when the policy first took effect not all project teams had a clear understanding of how to use LEED, this has changed over the past few years.

Planning Phase Review. Along with the application for a use permit or for a site plan, projects must submit a LEED scorecard, along with a description of how each LEED credit will be achieved

and why certain LEED credits cannot be achieved. §§36 (G)(5), 36 (J)(1). During the site plan process, the county and the applicant identify the green building measures that are to be included in the project. This commitment is made a condition of the site plan.

When a site plan application is submitted, the site planner assigned to the project distributes the application for review to numerous different people within the county for review of individual requirements, including the green building requirements. The Department of Environmental Services' green building manager reviews all LEED scorecards. The green building manager contacts the project applicant directly to ensure that the applicant understands what is required and to discuss how the project will incorporate green features. This typically involves one or two meetings with the applicant.

The zoning ordinance does not require that projects achieve a minimum number of LEED points. In practice, however, the county does require that most projects achieve at least 26 points, the minimum required for a LEED "certified" rating. According to officials, the County Board, which ultimately must approve all site plan projects, has made it clear that it expects this level from all projects, and the green building manager strongly encourages all projects to achieve this minimum in their submissions to the Board. When the policy was first adopted, some projects with fewer LEED credits were approved, but currently virtually all site plan projects meet the minimum LEED certified criteria.

Building Permit Review. The county requires applicants to submit additional reports tracking their progress in achieving the green building measures. These reports are to be submitted along with all building permit applications (6 or 7 for most projects), and the permits may not be issued if the reports are incomplete.

According to county officials, the documentation required is very similar to that required for LEED certification, and the project is followed through all stages of building permit review. Whenever a permit application is submitted, the applicant must submit a LEED update showing progress toward achieving the green building

measures included in the site plan approval. No specific format is required for the update, though officials note that a spreadsheet work well for agency reviews and developer updates. Depending on the stage of the project, this may include additional documentation such as material specifications, a commissioning plan, energy modeling, etc. The green building manager typically spends about an hour reviewing the documentation at each stage, which may involve a phone call to the applicant to discuss certain items or to request additional documentation. Following each review, the green building manager sends a letter to the permit official indicating approval of the green building requirements.

Inspections. County building inspectors check items that are included in the blueprints. Thus, certain green building measures (e.g., type of HVAC system) will be inspected, while others (e.g., type of paints) will not.

ENFORCEMENT

If at any point prior to issuance of a Certificate of Occupancy a project has not achieved 26 points, the county may require that other green building measures be incorporated. Because projects must submit updated documentation (typically including a spreadsheet with credits) with each of several permit applications, the county has not experienced a problem with projects reaching the final stages without the appropriate number of green building points.

The county's zoning code provides generally for the issuance of monetary fines for violations of any provisions of the code. Arlington County Zoning Ord., §37.

OTHER IMPLEMENTATION ACTIVITIES

Fees. The green building policy requires that all projects going through the site plan process must pay a fee of \$0.03/ft². At the time of the original policy enactment, this fee was based on the amount that would be charged by the USGBC for LEED certification. See Memorandum from Ron Carlee, County Manager to County Board of Arlington, Virginia at 3 (Nov. 21, 2003). Fees are deposited into a newly-created Green Building Fund, which is used to provide education and outreach to the public.

Financial Incentives. Arlington County's policy establishes strong financial incentives for projects to obtain formal LEED certification.

First, the *green building fund fee is refunded* (or, in many cases, not charged initially) if the project pursues LEED certification. According to officials, developers in the county identified the cost of LEED certification as the biggest impediment to pursuing certification.

Second, projects that achieve LEED certification may apply for a *density bonus*. The density bonus ranges from .15 FAR for a LEED "certified" level, to .35 FAR for a LEED "platinum" level project. (See Policy Summary in Appendix C.)

Staffing. The county did not do a quantitative fiscal analysis to determine its expected costs for administering the policy, but the policy proposal did recognize that additional staff resources would be needed. See Memorandum from Ron Carlee, County Manager to County Board of Arlington, Virginia at 6 (Nov. 21, 2003). The county initially considered using the Green Building Fund to hire staff for the program, but decided that its goal was to have these funds become phased out as more and more projects sought LEED certification. The decision was made to use the Fund initially for education and training.

The county has used existing staff to implement the policy, though the responsibilities of the green building manager have evolved to focus on review of the LEED scorecards. The county recently hired another staff person to address

issues relating to climate change, including some review of LEED documentation. According to officials, 1½ staff positions are currently designated for working on green building.

Education/Training. The county provided training on the LEED system for 35 county staff, including planners and inspectors, and has also held numerous workshops for other community members.

Inter-agency Coordination. The Environmental Planning Office, which has primary responsibility for working with applicants, reviewing green building documentation, and ensuring compliance, is located within the Department of Environmental Services. This office coordinates with the county's planning and building inspection staff, located within a separate agency, the Department of Community Planning, Housing and Development. Officials note that inter-agency coordination has presented a challenge for implementing the policy, because one office handles policy-making and document review functions, and another office handles permitting/inspection functions. The program has overcome this challenge by devoting considerable resources to working with applicants in the early phases of project review, and by providing strong financial incentives for projects to obtain LEED certification.

EVALUATION

According to officials, the green building program sought to establish a database of projects initially, but determined that it lacked adequate resources to maintain the information.

CITY OF ASPEN and PITKIN COUNTY, COLORADO

Pop. 16,420

OVERVIEW OF POLICY

For many years, the city of Aspen and Pitkin County have carried out innovative energy conservation policies and programs. In 2003, the municipalities adopted the Efficient Building Regulations, which incorporated broad-based green building criteria to guide new residential development. The original regulations created a flexible, point-based set of criteria that included both mandatory and optional measures. All new residential projects were required to achieve a minimum number of points by incorporating the mandatory measures and selecting among the optional measures.

The city plans to revise the regulations in 2008 to change the green building criteria significantly. As proposed, the new regulations would include a greater number of mandatory measures for all projects 1,000 square feet or larger, including commercial projects. In addition to these requirements, projects over 5,000 square feet would be required to incorporate a minimum number of optional measures from several different green building categories.

CITATION

City of Aspen and Pitkin County Efficient Building Regulations
Pitkin County Code Title 11; Aspen Municipal Code, Title 8

DATE

2003; revising: 2008

IMPLEMENTING AGENCIES

City of Aspen Community Development Dept.
Pitkin County Community Development Dept.

TYPES OF BUILDINGS

Residential

The proposed revisions under consideration for 2008 would expand the policy to include commercial projects.

SIZE OF BUILDINGS

Projects 1,000 square feet or larger

GREEN BUILDING CRITERIA

The 2008 proposed revision to the regulations would change significantly the nature of the Efficient Building criteria. Officials note that the changes would bring the regulation more in line with the IECC and the IRC and reflect the city's priority issues. The code would contain a more limited set of criteria, but would establish more stringent requirements.

Framework. The proposed regulation is divided into the following categories: framing and materials, improved indoor air quality, energy measures, renewable energy, Renewable Energy Mitigation Program, innovation points and water conservation. Each category contains optional measures, and most also contain required measures.

All projects at least 1,000 square feet would be required to incorporate the mandatory measures. Projects between 5,001 and 7,500 square feet would also be required to obtain a certain number of points from the optional measures in each category of the regulations, while projects over 7,500 square feet would have to obtain a higher number of points from the optional measures.

Indoor Air Quality. Along with stronger energy conservation measures, the new regulations would strengthen the IAQ requirements. The proposed mandatory IAQ measures include: radon mitigation system; mechanical ventilation; range hood exhaust to exterior; no attached garage or garage exhaust; sealed mechanical room; CO detector; low-VOC and/or low toxic interior paints and adhesives; and ducts sealed during construction.

Additional IAQ measures (*e.g.*, quiet exhaust fans, high efficiency filters, sealed combustion gas boiler or furnace) are included as optional points,

and larger homes would be required to include a minimum number of points from these IAQ measures.

DOCUMENTING AND VERIFYING COMPLIANCE

Covered projects must submit, along with their building permit application, an Efficient Building Checklist, which indicates the green building measures that the project will incorporate.

Under the original regulations, verification of compliance has been accomplished either through self-certification or through municipal inspection, as indicated on the checklist. The new regulations would eliminate many of the individual green building measures included in the original checklist, focusing instead on higher priority issues for the city. However, all of the measures included in the proposed checklist would have to be verified by the city, either through plan check or inspection.

According to officials, the major impetus for the proposed changes was to streamline both the requirements and the inspection process. In general, the new checklist would include measures that can be inspected during one of the city's regular building inspections. According to

officials, the new regulations would also include requirements for using HERS raters to verify compliance with energy efficiency measures.

ENFORCEMENT

If an inspection fails, the applicant may be required to submit a revised Efficient Building Checklist within 30 days of the inspection. According to officials, builders often incorporate more points than needed in the building design, in anticipation of losing some measures during the construction phase.

OTHER IMPLEMENTATION ACTIVITIES

During the first year following enactment of the original regulation, Aspen conducted a public education campaign designed to familiarize the building community and the public generally with the program. The city conducted green building fairs, and offered free plan reviews to check compliance with green building criteria.

EVALUATION

Prior to revising the Efficient Building Regulations, city officials audited some of the homes built under the original regulations and found that they did not meet the program's expectations.

AUSTIN, TEXAS

Pop. 717,100

OVERVIEW OF POLICY

Austin's green building program is one of the oldest and largest in the country. Developed and managed by the municipally-owned electric utility, Austin Energy, the program was created as a voluntary initiative. Builders who commit to using the program's broad-based, green building criteria receive technical assistance, project certification, and promotional benefits.

In 2003, the city began requiring that certain private-sector (non-subsidized) projects achieve a green building rating through the Austin Energy program. According to officials, about half of the projects that now participate in the green building program are required to do so under the law. Some of the green building requirements were included as part of a set of revisions to the zoning code for projects in the downtown area. Requirements also have been established by the city for various other projects (such as planned unit developments) that request discretionary zoning variances. The level of green building certification that must be achieved by these mandatory projects varies depending on the location and type of project.

CITATION

Austin Land Development Code §§ 25-2-593, 25-2-754, 25-3-87[B]

DATE

2003

IMPLEMENTING AGENCIES

Austin Energy

TYPES OF BUILDINGS

Commercial, Residential

SIZE OF BUILDINGS

No minimum size thresholds

GEOGRAPHIC SCOPE

All projects in the Central Business District and Downtown Mixed Use zones must achieve an Austin Energy Green Building rating. Several other zones also require a Green Building rating. These include the University Neighborhood Overlay district, the Traditional Neighborhood district, the Robert Mueller Airport Redevelopment, as well as several planned unit development (PUD) districts.

GREEN BUILDING CRITERIA

Framework. Austin Energy's Green Building Program has developed green building rating systems and checklists for single-family residential, multi-family residential, and commercial projects. See <http://www.austinenergy.com/Energy%20Effici>

[ency/Programs/Green%20Building/Programs/index.htm](#). For each rating system, the program offers five different rating levels – one through five stars. Most of the mandatory projects are required to achieve either a 1-star or 2-star rating. (The program has also created a special 2-star rating for Planned Unit Development projects.)

Although in the past the city allowed certain PUDs to satisfy the green building requirements by achieving a LEED certification, program officials do not anticipate moving in that direction in the future, as it is more difficult to exercise effective oversight for projects using third-party systems.

For each rating level a project must incorporate certain “basic requirements” (pre-requisites), as well as earn a minimum number of points by selecting optional criteria. The minimum number of points increases with each rating level (and 4-star and 5-star projects have additional pre-requisites as well). The basic requirements reflect the city's priority areas of energy and water conservation, as well as other measures in areas such as indoor environmental quality.

The optional green building measures for commercial and multi-family projects are divided into categories that include Site, Energy, Water, Indoor Environmental Quality and Materials and Resources. The single-family homes checklist includes a larger number of optional credits,

which are divided among 12 different categories.

Indoor Air Quality. The basic requirements for all green building rating levels include certain IAQ measures. For single-family homes, these measures address: (1) use of filters, (2) prohibition of unvented gas appliances, and (3) use of low-VOC interior paints. For multi-family residential projects, IAQ requirements address (1) use of filters, (2) use of low-VOC interior paints and coatings, and (3) use of certain moisture prevention measures. Commercial project requirements include use of low-VOC interior paints and coatings. The optional criteria for each rating system include numerous other IAQ-related measures.

DOCUMENTING AND VERIFYING COMPLIANCE

Austin's program is noteworthy for its involvement in projects from the planning stages through construction and commissioning. The program's large staff works with project teams to assist in incorporating green building measures and to ensure that those measures are documented throughout the process. Following is a description of the oversight process for projects that are required to obtain green building certification, which differs in certain respects from the process used for wholly-voluntary projects.

Planning Phase Review. Before a developer may submit site plan documents to the city's planning department, the developer must obtain a Letter of Intent from the Green Building program. The Letter of Intent affirms that the developer has met with the Green Building program to discuss the green building requirements as they relate to the project.

Although the Green Building program typically works with projects throughout the site plan process to review plans and discuss green building measures, this is not a strict requirement of the program.

Building Permit Review. Before submitting a building permit application, a developer must submit to the Green Building program a checklist, plans and specifications documenting that the project meets the minimum criteria of the green building

rating system. The program then issues a Certificate of Initial Compliance, which the project includes with its building permit application. According to officials, for projects that have worked closely with the program during the site plan process, this green building review does not delay the process. For projects that are submitting documentation for the first time at this stage, the green building program review may take up to two weeks.

Construction. According to officials, green building staff members work closely with their projects throughout construction. The program maintains an extensive database system which helps track each project. For example, if a project has not submitted the documentation required for a particular green building measure, the database system will flag this requirement, and the program will contact the project to obtain the documentation. (The Green Building Program is currently working on a major initiative to convert its current system to one that is wholly automated. When completed, the program expects the entire rating process to be conducted online and for this to save considerable staff time managing the program.)

The green building checklists specify the type of documentation that must be submitted as verification for certain pre-requisite and optional green building measures. In many cases, projects must use one of several calculators developed by the Green Building Program in the areas of water use, irrigation water use, building re-use, construction waste recycling, material emissions and material sources (salvaged, recycled, local, certified wood).

Before the adoption of the latest city Energy Code, the rating checklists required submission of certain testing results, depending on the type of project and the level of green building rating that was being pursued. For example, all single-family homes required duct-leakage testing as well as a Manual J (HVAC) report, while homes achieving 4-star and 5-star ratings required blower door tests, additional air-duct tests, and testing for combustion safety (backdrafting). These testing requirements have now been incorporated into the Energy Code, and the rating tools have been revised to reflect the higher

energy-efficiency requirements. All commercial projects must submit calculations for water use, construction waste recycling and energy efficiency, as well as a commissioning report. All multi-family residential projects must carry out duct-leakage and air balancing testing, and must submit energy efficiency calculations unless using the program's prescriptive option.

Inspections. The Green Building Program typically conducts 2-3 site inspections on a project, and these are wholly separate from the city's regular building inspections.

ENFORCEMENT

Projects that are required to achieve a green building rating may not obtain their final Certificate of Occupancy until they have complied with the green building criteria. If a project is flagged as a mandatory green building project, the Certificate of Occupancy may not be cleared unless the green building program checks off the appropriate box on the online tracking system of the city's Inspections Department.

In the event that a project does not achieve the minimum rating, the city may issue penalties. In the case of projects that are included in the Land Development (zoning) Code as mandatory green building projects, the code authorizes the city to levy a fine of \$2,000/day against projects that are in violation of the code. For projects that have been directed by the city to achieve a green building rating in exchange for zoning variances, the city does not have the authority to issue such a fine, but the city can require a non-complying project to substitute green building measures or to undertake other mitigation activities related to the green building measures that were not achieved in the project.

According to officials, the city has had to apply enforcement measures only occasionally since the mandatory green building requirements were enacted in 2003. The program works closely with most projects throughout the building process, and most projects meet the minimum requirements.

OTHER IMPLEMENTATION ACTIVITIES

Staffing. The Austin Energy Green Building program has 20 funded staff positions. Approxi-

mately 17 of these staff positions work with individual projects. The program is funded primarily by Austin Energy, with additional funding coming from the City Drainage Utility and the Water Utility. According to officials, most funding is the result of the reduction of capacity demand on Austin Energy's power plants, and, as a result, the program's services within the Austin Energy service area have been at no cost.

According to officials, in 2008, the program will institute fees to cover the registration and certification of green buildings under the program. The amount of the fee varies depending on the type and size of the project, and the fee will be waived for the city's main affordable housing program.

Education/Training. According to officials, design teams with little green building experience often have difficulty meeting the minimum required rating level. The Green Building Program conducts extensive education and training. The program holds free monthly training seminars for building professionals and conducts a workshop four times each year for city residents who are planning to build, buy, or remodel a home. The program also has published a Sustainable Building Sourcebook, which discusses a broad array of green building measures. See <http://www.austinenergy.com/energy%20efficiency/programs/green%20building/>.

Inter-agency Coordination. Officials note that the Green Building program has a close relationship with the city's planning and building officials, however the program's green building certification activities are wholly separate from the regular city building approvals process.

EVALUATION

According to officials, in 2007 there were approximately 1,000 single-family homes completed under the program, 19 commercial projects, and 8 multi-family projects containing 1,267 units. As noted earlier, about half of these projects were required to obtain a green rating, while the remainder were voluntary participants.

Program officials note that evaluation of program results is a central part of the Green Building program, because the program is part of the

city's electric utility and also receives funding from the municipal water utility. For single-family homes, the program uses a "deemed savings" amount for a typical green building home in the program, which is determined by reviewing a representative sample of homes in the database and identifying the energy and water conservation measures utilized in those homes. For commercial projects, the program requires modeling or calculations for every project to determine

actual energy use, water use, and construction waste recycling. Thus, the program is able to determine the savings achieved through the program in these areas.

The program also provides case studies of individual homes that have been certified. See <http://www.austinenergy.com/energy%20efficiency/programs/green%20building/Resources/Case%20Studies>.

BOSTON, MASSACHUSETTS

Pop. 575,187

OVERVIEW OF POLICY

The city of Boston amended its Zoning Code to include green building requirements for all new construction and renovation projects going through the city's Large Project Review. Such projects must meet the LEED "certified" level, however registration with USGBC and formal LEED certification are not required.

CITATION

City of Boston Zoning Code, Arts. 37, 80

DATE

January 2007

IMPLEMENTING AGENCIES

Boston Redevelopment Authority
Boston Interagency Green Building Committee

TYPES OF BUILDINGS

Commercial, Residential (Multi-family)

SIZE OF BUILDINGS

At least 50,000 square feet of gross floor area for most projects

The policy applies to projects subject to the city's Large Project Review process. In 2006, prior to the law taking effect, the city approved 26 large projects.

GREEN BUILDING CRITERIA

Framework. Boston's green building requirements are based on the LEED rating system criteria, including LEED criteria relating to indoor environmental quality. In addition to the LEED criteria, the city has developed additional "Boston Green Building Credits" that provide applicants with additional optional measures for inclusion in their projects. These measures address the following subjects: electricity distribution, historic preservation, groundwater recharge, and transportation demand management. In order to use these credits, projects must also meet certain requirements related to retrofitting diesel construction vehicles, establishing an outdoor construction management plan, and establishing an integrated pest management plan. §37-4, Appendix A.

DOCUMENTING AND VERIFYING COMPLIANCE

The city described its plan for integrating the requirements of the green building ordinance throughout the large project review process in a presentation to the Zoning Commission. City of Boston, *Green Building Initiative* (presentation to Boston Zoning Commission, 1/10/07).

The Boston Redevelopment Authority (BRA) is charged with determining a proposed project's compliance with the new law, with advice from the city's Interagency Green Building Committee. The Redevelopment Authority may only issue a Certificate of Compliance if a project complies with the green building requirements. The city's Inspectional Services agency, in turn, may not issue a building permit or a use permit if a Certificate of Compliance has not been issued. §§37-7, 80B-6.

Applicants for the city's Large Project Review – a comprehensive review of large development projects before and during the schematic design stage to assess a project's impacts and identify necessary mitigation measures -- must submit a LEED scorecard and supporting documentation to the BRA showing that the project "is LEED certifiable under the most appropriate LEED building rating system." §§37-4, 37-5.

Green Building Professional. The ordinance requires that project documentation be certified by a LEED Accredited Professional or other approved expert. §37-5. The city requires projects to include a LEED-AP in order to ensure that green building measures are integrated early in the project and to ensure a high level of documentation of green building measures. According to officials, most large firms in Boston have this capacity already.

Project Notification. At the initial stage of project notification, a project must indicate the team's green building expertise, include a LEED scorecard, and state if the project will be registered or seek certification from the USGBC. The project must also provide a detailed narrative of how each of the proposed green building items will be achieved. The project's scoping session with the city will review the team's approach to integrated design, review the LEED scorecard, and discuss green building strategies that the project will incorporate.

Project Impact Reports. Projects must submit a Project Impact Report, upon which the Board bases its decision to approve the project. With this report, the applicant must submit the most up-to-date (final) version of the LEED scorecard as well as a detailed narrative describing each point will be achieved or cannot be achieved. At this stage, the BRA works with the applicant and consults with the Boston Interagency Green Building Committee to review the LEED scorecard prior to submitting the project to the Board for approval.

Design Review. Following Board approval, BRA undertakes design review of the project, which includes review of a new LEED scorecard and related documentation of credits. Following this review, the BRA issues the Certificate of Compliance and the green building measures included in the project scorecard are included in the construction documents.

Prior to construction, projects enter into a Cooperation Agreement, which details any financial or other commitments that the project has made throughout the process, as well as agreed-on mitigation measures. Although the city initially considered using this vehicle to affirm the green building requirements, officials are now considering a different approach to formalizing the green building commitments.

Inspections. Inspections are carried out by a separate city agency, and BRA officials are concerned about burdening inspectors that already have heavy workloads. At this stage in the policy's implementation, it has not been clearly established how existing inspections will incorporate green building measures, and this will likely

evolve over time. The approach of the policy is to integrate green building requirements into the existing permitting process, rather than add new steps for projects or increase the workload for the agency.

ENFORCEMENT

As noted above, issuance of a building permit is contingent on verifying compliance with the green building requirements. Officials note that one incentive for compliance is that many of the applicants will appear repeatedly before the agency on new projects.

OTHER IMPLEMENTATION ACTIVITIES

Inter-agency Coordination. The city's Interagency Green Building Committee, which existed prior to adoption of the ordinance, plays an active role in implementing the new policy. The committee meets monthly and may address both individual project concerns as well as policy issues related to implementation of the ordinance.

Resources. The city did not conduct a formal fiscal analysis regarding implementation of the policy, nor were additional resources allocated to city agencies to implement the ordinance. Officials note that additional resources may be needed if the policy becomes more focused on compliance in the construction and post-construction phases.

Staffing. Although the BRA did not add staff positions to implement the policy, the agency did identify its Environmental Review Specialist as the point person for the initial review of green building documentation. This staff position had been responsible for brownfields and other environmental issues, and green building issues were added to these responsibilities. The Environmental Review Specialist is notified initially when a new project is coming and she receives the initial LEED checklist. She ensures that projects have the minimum number of credits, and she may work one-on-one with a project team if needed. She also works directly with project managers within the agency. According to officials, having an Environmental Review Specialist as the point person on reviewing green building measures is very helpful to providing early feedback to and oversight of projects regarding their green building measures.

Training. Training was provided for all project managers, during which participants considered how the policy would apply to selected projects currently before the agency. The training was provided by the Green Roundtable, a non-profit organization that received a grant from the city to provide the training and to offer ongoing technical assistance and education to the BRA.

EVALUATION

The city will begin requiring projects to submit green building checklists in Excel format, rather than hard copy, and may consider compiling information from project scorecards in the future.

BOULDER, COLORADO

Pop. 92,474

OVERVIEW OF POLICY

In 2001, Boulder created its own flexible, point-based residential green building criteria, known as “Green Points,” and formalized those criteria as a city ordinance. The 2007 revision of the ordinance (effective in 2008) made significant changes to the Green Points criteria and added certain mandatory green building elements. All residential new construction must meet the mandatory green building elements of the policy, while new construction over 1,500 square feet must also earn a specified minimum number of points (increasing with the size of the project) from an array of optional Green Points criteria. Remodels and additions of at least 500 square feet must also meet mandatory elements and earn a minimum number of points from the optional criteria.

CITATION

Boulder Ordinance No. 7565; Boulder Revised Code Chap 10-7.5

City of Boulder Residential Green Building Guide

DATE

2001; revised 2007

The main driver for the 2007 revision was to link the program with larger city environmental policies and goals that have been developed in recent years – e.g., Climate Action Plan, Waste Action Plan, and water conservation. The changes reflect the evolution of the city’s sustainable development policy.

IMPLEMENTING AGENCIES

City of Boulder Planning and Development Services

City of Boulder Office of Environmental Affairs

TYPES OF BUILDINGS

Residential

In the 1970s, Boulder conducted an Energy Assessment that indicated potentially large savings from the residential sector, and an Energy Conservation program was developed. This was the forerunner to the current green building program.

SIZE OF BUILDINGS

New construction: Single-family and multi-family, no minimum thresholds

Additions, remodels: 500 square feet or more

Two or more building permit applications for the same structure within a 12-month period are

treated as one application for purposes of applying the ordinance.

GREEN BUILDING CRITERIA

The 2007 revision of the Green Points program included significant changes to the green building criteria, including the creation of mandatory elements. The changes focused primarily on energy efficiency and construction waste management, but also included new measures in other areas.

Framework. One of the main changes to the criteria in 2007 was the addition of a requirement that new homes exceed the energy efficiency requirements of 2006 IECC by 30-75%, increasing with the size of the home. Multi-family buildings must exceed the IECC by 30%. Construction waste and demolition management requirements were also added, as were requirements for efficient lighting and the use of direct vent furnaces in additions and remodels.

In addition to new mandatory elements, Green Points continues to offer a menu of numerous optional green building measures assigned specific point values. Applicants must obtain a minimum point value to meet the criteria – 20 points for a newly-constructed single-family home between 1,501-3,000 square feet, 40 points for a home that is 3,001 – 5,000 square feet, and 60 points for homes over 5,000 square feet. Point totals are also set for multi-family buildings and for additions and renovations. (As noted earlier, a project may opt to pursue LEED certification (silver or higher) in lieu of meeting the Green Points criteria.)

Indoor Air Quality. The optional IAQ elements of the program were revised in 2007 as well. Significantly, projects may receive 10 points for complying with EPA's Energy Star/Indoor Air Package. Points are also available for individual measures, such as mechanical ventilation, HVAC filter efficiency, radon-resistant new construction, combustion pollutant measures, and low-emitting materials.

DOCUMENTING AND VERIFYING COMPLIANCE

Applicants for a residential building permit must submit a Green Points application, indicating which green building measures are being incorporated into the project. Applicant must demonstrate compliance with all of the provisions of the ordinance prior to the issuance of a certificate of occupancy by the city manager. §10-7.5-2(c).

Under the original Green Points system many measures were self-certifying – that is, applicants needed only to sign the application certifying their inclusion. Certain measures required additional verification through a plan check or a city inspection.

According to officials, the city included self-certifying measures in the original policy in order to minimize the staff resources needed and to avoid major changes to the existing building permitting program. The city also sought to avoid creating a system that was confusing or difficult for builders.

The 2007 revisions seek to make the system more verifiable. The ordinance specifies the method of verification for each optional item, most of which require verification during plan check and/or a specified inspection. According to officials, the necessary verification documentation will be requested throughout the building process to ensure compliance and must be received by the city before a final Certificate of Occupancy is issued.

The ordinance also includes an Accountability Form that must be submitted in addition to other verification documentation, for projects that select certain Green Points criteria (*e.g.*, environmentally preferable materials, ENERGY STAR Indoor Air Package). See Green Building and Green Points Guideline Booklet, Appendix E.

With respect to energy performance, the policy requires that all new dwellings are evaluated using a Home Energy Rating System (HERS) Rater accredited by the Residential Energy Service Network (RESNET). The ordinance also contains requirements for energy audits for additions or remodels.

Exemptions. The revised policy authorizes the city to make changes in the award of green points in certain specified circumstances. §10-7.5-5.

ENFORCEMENT

The revised policy states that “no person shall construct in violation of a Green Points approval.” §10-7.5-2(c). According to officials, if a city inspection reveals non-compliance with a particular item, then the item would be “recalled” as would other types of (non-Green Points) items. The ordinance now requires that an applicant “shall demonstrate compliance . . . prior to the issuance of a certificate of occupancy by the city manager.” §10-7.5-2(c).

The ordinance also states that those who pursue LEED (silver) certification as an alternative to using the Green Points criteria must complete the LEED certification process and receive certification within 6 months after the final inspection on the building permit, though an extension may be granted for good cause. §10-7.5-2(d). According to officials, the city will issue a temporary certificate of occupancy until LEED certification can be verified. This exemption only applies to the Green Points requirements; buildings still must comply with the HERS index score for energy efficiency.

OTHER IMPLEMENTATION ACTIVITIES

Resources. The policy itself does not address funding, resources, or staffing for implementation. The costs of the program are absorbed into the existing operating budget. Officials note that the city has sought to avoid increasing existing permitting fees. The city is pursuing two state grants to assist in implementing the new energy-related requirements of the policy. The Office of Environmental Affairs will contract with building professionals to provide green building training throughout 2008.

Inter-agency Coordination. The Office of Environmental Affairs is responsible for policy development, general assistance in implementing the policy, and green building outreach and education. The Office of Planning and Development administers the policy through the permitting process. Having two agencies responsible for a policy is beneficial from the standpoint of integrating government functions and areas of expertise. Officials note, though, that when a policy is developed by an agency that is not charged with implementation, it is a challenge to address the lack of resources and the institutional culture of the implementing agency.

EVALUATION

According to the city's Program History, the green building program created a database of buildings to keep track of the green building measures noted in project applications. In 2006, there were 512 total building permits subject to the policy. In 2001, there were 290 permits. See City of Boulder Residential Building and Demolition Permit Numbers from 2001-2006 (Attachment G). According to officials, this database is used only periodically due to a lack of funding for data management. The city did, however, work with a consultant to analyze certain quantifiable building envelope and energy measures, and the city determined that projects using Green Points were achieving roughly a 30% increase in energy efficiency above 2000 IECC.

CALABASAS, CALIFORNIA

Pop. 23,652

OVERVIEW OF POLICY

Under the Calabasas green building ordinance, all new construction and renovation of commercial buildings involving more than 500 square feet of space must meet the equivalent of the LEED rating system's "certified" level (buildings up to 5,000 square feet) or "silver" level (buildings over 5,000 square feet). Projects are not required to register with the USGBC or seek formal LEED certification.

CITATION

Calabasas, Ca. Ordinance No. 2003-185; Calabasas Municipal Code, Ch. 17.34

DATE

February 2004

IMPLEMENTING AGENCIES

Office of Planning and Environmental Programs

TYPES OF BUILDINGS

Commercial (non-residential)

SIZE OF BUILDINGS

Commercial projects larger than 500 square feet

GREEN BUILDING CRITERIA

Framework. The Calabasas green building ordinance incorporates the LEED rating system as its substantive green building framework, without modification, including the indoor environmental measures that are found in LEED.

DOCUMENTING AND VERIFYING COMPLIANCE

Although the ordinance took effect in 2004, no commercial development within the city has been subject to the ordinance as of yet, though there are a couple of projects that are in the environmental impact review phase and may go to construction within the next 1-2 years. Officials expect there may more redevelopment over time.

The ordinance requires the Director of Planning and Environmental Programs to determine whether a project meets the applicable green building criteria. The ordinance does not specify the content or procedures for submitting documentation of compliance with the green building requirements. §17.34.020 (C).

Pre-permitting Review. According to officials, the planning department will meet with the developer initially to discuss various LEED points that are available by following code, as well as other LEED points that might be appropriate for the project and not difficult to incorporate. Along with the first project submission (the "entitlement" review phase), the city will require the submission of a LEED checklist and a narrative explanation of how the project will meet the minimum requirements. There is no required format for the narrative, as long as the narrative clearly explains how the project will meet the intent of the criteria.

Plan Check Review. The city will require a design submittal during the plan check phase, to review all design-related LEED credits.

Post-construction Review. Following construction, the city plans to require a final submittal documenting all construction-related credits and any other issues not otherwise resolved.

According to officials, the city is considering allowing waivers of the design submittal requirements for projects that meet criteria relating to green building expertise or experience. For example, the city might waive the submittal requirements for projects that have a LEED-AP on the team, or that have considerable experience with LEED buildings in California.

ENFORCEMENT

No permit, certificate of occupancy or other approval may be issued until the city has determined that the project has met the LEED criteria. §17.34.020 (C). According to officials, the city will likely issue a temporary Certificate of Occupancy while it completes the review of

green building credits that cannot be verified until after construction is completed. The city's development code provides generally for the issuance of monetary fines and other penalties for violations of the code. §17.80.

**OTHER IMPLEMENTATION
ACTIVITIES**

Staffing. The city views itself as essentially acting in the place of USGBC to verify that the project satisfies the required LEED criteria. The city

anticipates that it will need to assemble a team to review each project.

Fees. The ordinance requires applicants to submit "a fee in an amount established by resolution of the City Council to cover the cost of the city's review of the application." §17.34.020(B). The city has not yet established this fee, but is considering the costs that will be involved in city review, and that will be borne by the developers.

FRISCO, TEXAS

Pop. 88,388

OVERVIEW OF POLICY

In 2001, the city of Frisco saw a wave of development coming, and intervened to shape it in a more sustainable fashion. The city adopted an ordinance that established a series of mandatory green building measures to be incorporated into all new single-family buildings platted on or after that date. Five years later, the city undertook a revision of the ordinance to reflect changes in the building code, new technologies, and experiences implementing the program. In 2007, the revised ordinance took effect, covering all single-family homes that go through the building permit process.

CITATION

Frisco, Texas Ordinance No. 06-10-111

DATE

2001; revised 2007

IMPLEMENTING AGENCIES

Planning and Development Services

TYPES OF BUILDINGS

Residential

According to officials, the city decided to limit its initial green building ordinance to residential projects, due to the expected growth in residential development and also due to concerns about hindering commercial development and limiting tax revenue. In 2004 the city developed a pilot project for commercial green building to determine an effective approach. In 2006, the city created its green building program for commercial buildings. That program is not discussed here, because it is limited to a small number of specific green building issues – cool roofs, conservation of water for landscape irrigation, and construction waste recycling.

SIZE OF BUILDINGS

Single-family homes; no minimum size

GREEN BUILDING CRITERIA

Framework. Frisco has created its own green building requirements for single-family homes. In contrast to the flexible checklist approach, the city developed a list of mandatory measures to ensure that the city's specific health and environmental priorities would be incorporated in all homes. The measures fall into the following categories: Energy Efficiency, Water Conservation, Indoor Air Quality, and Waste Recycling. Most of the measures in the revised

code are new. A few original requirements were carried over, while some (*e.g.*, CO alarms) were eliminated because they already had been adopted in the city's building code. See http://www.friscotexas.gov/uploadedFiles/Departments/Planning_Development/Environmental/ResGreenBuildingMinimumStandards.pdf.

Indoor Air Quality. The mandatory IAQ measures now include: mechanical ventilation per ASHRAE Standard 62.2; screening and location of outdoor air intakes under soffits and gables; use and replacement of HVAC filter during construction; use of low-emitting carpets; cushions, and carpet adhesives; and restriction on the use of vinyl wallpaper.

DOCUMENTING AND VERIFYING COMPLIANCE

The requirements under the green building ordinance are integrated with the city's other requirements for new homes in the building permit process. In conjunction with the 2007 revision of the code, the city created a "Responsibilities Table" outlining the responsibilities of the city and the builder in ensuring that the requirements of the ordinance are met.

Third-party testing. The city emphasizes testing as the best way to ensure that the features required in the ordinance are actually being incorporated. Based on its experience with the first several years of its policy, the city has determined that it is not sufficient to allow self-certification. Moreover, the city determined that it should exercise greater oversight of the testers, if the testers are third-parties contracted by the builders.

Since the ordinance's requirements are based heavily on the Energy Star program, the city has

incorporated the testing and certification requirements of that program. Builders are required to contract with third-party testers (Home Energy Rating System (HERS) providers) to conduct these measurements and provide documentation to the city. The city has developed a list of the items that the HERS providers are required to verify, which include the Energy Star requirements, as well as certain indoor air quality/ventilation requirements included in the ordinance.

The city made two significant changes in 2007 with respect to third-party testing. First, the city changed the Energy Star requirement of “batch testing” (one out of every six homes with the same design) to a requirement that every home be tested. Second, the city instituted greater oversight over the testing process by creating a program of random testing by city inspectors to verify the testing results.

City Inspections. The city is responsible for conducting inspections to verify certain other requirements that are not tested and documented by the builder – *e.g.*, programmable thermostats, HVAC filters, and restrictions on the use of vinyl wallpaper.

Other documentation. The builder is required to provide additional documentation for verifying compliance with certain requirements. These include documentation on the types of carpets and carpet adhesives used, as well as documentation on the type of plants and mulch used.

ENFORCEMENT

Anyone who violates the ordinance may be guilty of a misdemeanor and subject to a \$500 fine for each day that the violation continues. §4. According to city officials, builders do not receive a Certificate of Occupancy until they comply with the ordinance.

OTHER IMPLEMENTATION ACTIVITIES

Outreach/Education. Outreach to builders has been an important part of implementing the policy. The city learned that it is vital to bring building professionals to the table when creating a green building program. The city also has hosted an annual Green Home Fair for the past seven years to educate residents on green products and practices. The city also provides speakers on green building topics at meetings of building professionals. City officials plan to increase outreach and will be developing a pamphlet for homeowners. The goal is to help homeowners understand what green building features to expect from their home, as well as their ability to request additional testing or modifications from the builder if necessary.

Staffing. According to officials, no new staff were added initially to carry out the program, which made implementation more difficult. Last year the city requested and received some additional staff resources. The recent slowdown in housing construction, inspectors may have some time to help with green building inspections.

Inter-agency Coordination. A number of municipal agencies are involved in implementing the green building ordinance. Primary responsibility lies with the Office of Planning and Development Services, which handles the permitting process for new homes. The Environmental Services office is responsible for enforcing the recycling portion of the ordinance, while the Public Works office handles the water conservation requirements. The Responsibilities Table outlines this division of oversight.

EVALUATION

As of June 2007, 10,199 homes had been built under the program since the program’s inception in May 2001. Because the city uses the Energy Star program as a basis for many of its requirements, the city tracks environmental outcomes using the Energy Star program’s calculations for homes that meet the program’s criteria.

LONG BEACH, CALIFORNIA

Pop. 466,718

OVERVIEW OF POLICY

In late 2006, the Long Beach City Council approved a plan for the City to engage in a period of public comment on a green building plan for private development and to propose the plan for adoption in 2007. At the same time, the city instituted an interim requirement that commercial and residential building projects must meet the LEED certified-level criteria. The interim policy applies to projects that meet minimum size threshold and apply for “development entitlements” (planning phase review for large projects). According to officials, in 2008 the city expects to present for Council review a permanent green building policy that continues and builds on the interim policy described below.

CITATION

City of Long Beach Interim Green Building Requirements for Private Development

DATE

November 2006

IMPLEMENTING AGENCIES

Department of Planning and Building

TYPES OF BUILDINGS

Commercial, Residential/Mixed Use

SIZE OF BUILDINGS

Residential: 50 or more units

Commercial: At least 50,000 square feet of building area

GREEN BUILDING CRITERIA

Framework. The Long Beach interim green building requirements are based on the LEED rating system criteria, without modification, including the including LEED criteria relating to indoor environmental quality.

According to officials, in 2008 the city expects to propose modifications to its zoning and building codes that would incorporate a number of green building measures included in the LEED rating system. These code changes would apply to all projects regardless of whether they meet the size thresholds established in the green building policy.

DOCUMENTING AND VERIFYING COMPLIANCE

The interim policy in place in Long Beach was not formally adopted by the City Council as an ordinance or resolution, but the one-paragraph policy is available on the web site of the city’s Department of Planning and Building. See www.longbeach.gov/plan/pb/apd/green/default.asp. During the year the interim policy has been in place, one project has been subject to its requirements.

Prior to obtaining a Certificate of Occupancy, covered projects must either (1) register with the USGBC with the intent to meet the criteria of the LEED certified level; or (2) provide third-party verification that the final building design achieves the criteria of the LEED certified level.

Documentation. According to officials, the city requires covered projects to submit an annotated LEED checklist before they are granted development entitlements. The checklist should include notes that explain how the project will achieve the credits. The city expects to require projects to include 28 or 29 credits at the outset of the project, as insurance that the project as built will achieve the minimum 26 points for the LEED certified level.

In addition to requiring the initial submission of the checklist, the city requires that the applicant reference the green building measures in the project plans and specifications.

Verification. During implementation of the interim policy, the city has hired a consultant (the non-governmental organization Global Green USA) to review and verify compliance with the LEED criteria for the one project that has been subject to the interim policy. According to officials, under the permanent policy the city expects to charge projects a fee to recover the city's costs for hiring consultants to review green building documentation.

**OTHER IMPLEMENTATION
ACTIVITIES**

According to officials, the revised policy may incorporate incentives such as expedited review or development bonuses (*e.g.*, bonus height or density, decreased parking requirements) to encourage projects to exceed the policy's minimum requirements.

MARIN COUNTY, CALIFORNIA
Pop. 69,298 (unincorporated)

OVERVIEW OF POLICY

In 2001, Marin County developed its own green building design guidelines to help support the county development code requirement that residential building projects foster energy and natural resource conservation. Residential new construction and remodeling projects subject to the county's discretionary design review process (single-family homes over 4,000 ft², projects requesting a variance, use permit, etc.) were required to earn a minimum number of points by incorporating green building features included in the guidelines. According to officials, about 75% of new homes have gone through this process, or roughly 30 new projects per year.

The county is revising its green building policy and program in 2008. Instead of using its own guidelines, the county plans to incorporate the GreenPoint Rated system, a residential green building rating system administered by the California-based, non-profit organization, Build It Green.

CITATION

Marin County Residential Design Guidelines

DATE

2001; under revision, 2008

IMPLEMENTING AGENCIES

Marin County Community Development Agency

TYPES OF BUILDINGS

Residential

According to officials, there is little commercial development in the unincorporated parts of the county.

SIZE OF BUILDINGS

The policy applies to residential buildings subject to the county's discretionary review process, which includes all homes over 4,000 square feet, as well as certain specific zoning districts.

GEOGRAPHIC SCOPE

Unincorporated areas of Marin County

GREEN BUILDING CRITERIA

Original Framework. Marin County's original policy created residential green building guidelines for new construction and remodeling projects consisting of a listing of numerous optional green building measures that were each assigned a point value. There were no mandatory measures in the guidelines; applicants could select any measures to achieve the required minimum points, including several indoor environmental

quality measures. The guidelines required more points as home size increases.

Revised Framework. The County's planned revisions would incorporate the GreenPoint Rated system, which was developed and is managed by the non-profit organization Build It Green. In conjunction with green building guidelines, the system uses the GreenPoint Rated checklist, which assigns each strategy a point value within five categories: energy efficiency, resource conservation, indoor air quality, water conservation and community integration and sensitivity.

If a home achieves 50 total points and meets minimum point requirements in each category (Energy (11), IAQ (5), Resources (6), and Water (3)), it qualifies as a "GreenPoint Rated" home. However, the county intends to continue its policy of requiring more points as home size increases. The system certifies third-party Raters who are hired by builders to verify compliance with the guidelines.

Indoor Air Quality. The GreenPoint Rated single-family checklist includes 45 points (15%) of design strategies that are listed as "Indoor Air Quality/Health" points. As noted above, a building must achieve a minimum of 5 of these 45 points in order to achieve GreenPoint Rated certification. The checklist awards 5 IAQ points for obtaining the Energy Star with Indoor Air Package Certification.

The other principal IAQ-related strategies in the checklist include: radon-resistant new construction; low emitting materials and flooring; CO alarms; high efficiency HVAC filters; mechanical ventilation; combustion safety (e.g., sealed-combustion appliances).

DOCUMENTING AND VERIFYING COMPLIANCE

According to officials, the county's experience implementing its original policy demonstrated that verification of compliance with green building requirements is essential, and that the costs of verification must either be absorbed within the government or transferred to the applicant. The revisions to strengthen the green building policy follow the adoption of a new Countywide Plan based on 12 principles of sustainability, as well as a general increase in both public awareness and evidence of the benefits of green building.

Original Policy. Under the original policy, the county used a system based on self-certification. Covered projects were required to submit a copy of the county's green building checklist prior to obtaining Planning Approval from the planning office. As part of the checklist, the project owner certified under penalty of perjury that the submitted project was designed to include the items indicated. At the time of building inspection and prior to receiving the final occupancy approval, applicants were required to re-submit the checklist, certifying that the items indicated had been installed and/or utilized as part of the approved project. In general, the checklist was the only documentation required of the applicant.

According to officials, the planning office took a team approach to reviewing green building checklists. The planner assigned to the project was responsible for reviewing the checklist, but s/he consulted with the county's Green Building Coordinator to discuss questions or concerns

that arose regarding specific green building measures to be incorporated in the project.

Revised Policy. The planned revisions would incorporate the GreenPoint Rated third-party rating and certification system and would require the use of HERS raters to verify energy-related measures.

Under the new policy, the county expects to require proof of compliance prior to final inspection.

OTHER IMPLEMENTATION ACTIVITIES

Staffing. The Community Development Agency employs a Green Building Coordinator, who is responsible for carrying out the green building policy and other environment-related policies of the agency. About half of the manager's time is devoted to green building issues, including implementation of the policy.

Inter-agency Coordination. The planning and permitting functions are housed in separate administrative divisions within the agency. According to officials, this is one reason the county has relied largely on self-certification in the past. Once the new policy is in place, the agency expects to provide training for inspectors so that they can more easily identify green building measures.

EVALUATION

Green building officials in Marin County hope to obtain information from Build It Green regarding how frequently projects use each measure on the GreenPoint Rated checklist. According to officials, Build it Green is also working to develop a greenhouse gas calculator that will provide an estimate of the greenhouse gas reductions achieved by implementing the measures on the checklist.

MONTGOMERY COUNTY, MARYLAND

Pop. 932,131

OVERVIEW OF POLICY

Montgomery County's green building law requires private commercial and multi-family residential building projects – both new construction and extensive modifications -- to achieve the equivalent of a LEED certified rating. Projects are not required to obtain formal LEED certification through the USGBC.

CITATION

Montgomery County Code §§8-46 – 8-52 (Green Buildings Law)

Montgomery County Executive Regulation No. 19-07AM (Buildings – Energy Efficient and Environmental Design)

DATE

November 2006

The ordinance takes effect September 2008. The delayed effective date reflects the fact that the policy includes requirements for projects at the building permit phase. Officials note that the later effective date will help ensure that projects entering the design phase at the time the ordinance was enacted can develop their green building measures at the outset and submit the appropriate documentation with the building permit application.

IMPLEMENTING AGENCIES

Department of Permitting Services

TYPES OF BUILDINGS

Commercial, Residential (multi-family)

SIZE OF BUILDINGS

Commercial: projects with at least 10,000 square feet or more of gross floor area

Residential: multi-family buildings greater than 4 stories, with at least 10,000 square feet or more of gross floor area

According to officials, in recent years, the DPS has received about 60 projects per year that would fall within these size thresholds.

GREEN BUILDING CRITERIA

Framework. Montgomery County's green building law incorporates the LEED rating system as its substantive green building framework, without

modification, including the LEED indoor environmental quality criteria. The law authorizes applicants to request approval from DPS of an alternate, equivalent rating system.

DOCUMENTING AND VERIFYING COMPLIANCE

Pursuant to the green building law, the Department of Permitting Services (DPS) has developed regulations establishing the process for documenting and verifying compliance once the law takes effect in September 2008.

Criteria. The law requires that projects achieve the equivalent of a LEED "certified" rating. Code §8-49(b). The DPS may not issue a final certificate of occupancy unless it verifies that a project has complied with the law. Code §8-50(c); Reg. §5.8.

The regulations establish alternative means of complying with this substantive requirement. The preferred method stated in the regulations is for applicants to obtain LEED certification through the USGBC. Reg. §4.2. The second option, for projects not pursuing formal USGBC review, is the "County certification process." Under this option, DPS will undertake a "complete review and inspection process. . . using the LEED rating system to document design, construction, and post-construction phase compliance." Reg. §4.3. Finally, applicants have the option of using an "equivalent rating certification process." Under this option, applicants must obtain DPS approval of the system as equivalent to LEED, using the DPS' existing process for requesting modification of building code provisions. Reg. §4.4.

The law does not require that projects use a LEED Accredited Professional or equivalent. For projects that do not obtain formal LEED

certification, however, the regulation does require that green building documentation be certified by a design professional who is registered with the state. Reg. §§4.3, 4.4.

Documentation. Under the law, applicants for a building permit for covered projects must submit design plans that “are likely to achieve” the green building standards required by the law. The law authorizes the DPS to request additional documentation from applicants. Code §8-50. The regulation further provides that, for project’s using the County certification process (option 2, above), “a building owner must submit to [DPS] any information relating to the building’s design, construction methods and materials, and operation that the Department requires.” Reg. §5.3.

Initial Planning Stage. According to the regulation, before a covered project applies to the Planning Board or Board of Appeals for the first regulatory approval, the project must register with the USGBC, the DPS, or an equivalent rating entity. Reg. §5.0. When an application is filed with the Planning Board or Board of Appeals on a covered project, the applicant must submit a Green Building Concept Plan to the DPS. According to the regulation, the Concept Plan is “a conceptual document that is intended to be a planning tool for [DPS], is not legally binding, and can be modified any time before a building permit is issued.” Reg. §5.2. The Concept Plan includes proof of registration of the project, identification of the rating system used, and a description of the green building features using the applicable checklist. Reg. §3.0.

During the early conceptual phase, projects are submitted to a separate agency, the Maryland Department of Parks and Planning, which addresses siting issues and coordinates a multi-agency Development Review Committee. According to officials, the DPS participates in the committee and will review the project at this stage using the Green Building Concept Plan.

The county also has issued a separate Subdivision Regulation that conditions approval of a Preliminary Subdivision Plan on submission of a Green Building Concept Plan, for projects that are covered by the green buildings law. Subdiv. Reg. Amdmt. 06-01; Mont. County Code §§ 50-1, 50-34.

Building Permit. With the application for a building permit, the applicant must also submit an application for green building certification that includes proof of project registration and that identifies: the applicable rating system, the state-registered design professional who is the main point of contact; and all approved or anticipated design, construction, and post-construction phase credits. The application must also include any additional documentation of green building credits that is requested by DPS. Reg. §5.4; Code §8-5.1.

Within DPS, certain plan reviewers work specifically on larger buildings. According to officials, these staff will incorporate the green building review into their plan review.

Construction. The regulations require that covered projects participate in a Green Building Construction Meeting with DPS prior to construction to demonstrate that “a process in place to adequately implement and document construction phase credits.” Reg. §5.5. For example, if recycling credits are being claimed, the agency may review whether the project has included recycling requirements as general conditions for all contractors. Specifications for paints and carpets may also be reviewed.

Use and Occupancy Certificate. Under the regulation, the applicant and the project’s state-registered design professional must attend a Green Building Credit Verification meeting with the DPS prior to issuance of a Use and Occupancy Certificate. At this meeting, the applicant must demonstrate that the required number of design and construction phase credits has been obtained. Reg. §5.7.

Inspections. According to the regulation, the DPS may conduct inspections at any time as necessary to document construction and post-construction phase credits. Reg. §5.6. The regulation also specifies that DPS must inspect the building prior to issuing a Use and Occupancy Certificate to verify that the design and construction phase credits have been obtained. Reg. §5.7.

If the project does not comply with the green building requirements, the DPS may issue a temporary, revocable Use and Occupancy Certificate if the applicant demonstrates that “a process is in

place to adequately implement and document anticipated construction or post-construction phase credits and the building can be safely occupied.” Reg. §5.8. According to officials, the DPS may issue a temporary use and occupancy certificate for a project that includes credits that require verification post-occupancy (*e.g.*, certain commissioning requirements).

In Montgomery County, the agency with primary responsibility for implementing the green building policy is also the agency that is responsible for building inspections and issuance of the final permits. According to officials, the agency’s regular inspections will serve as a spot check to verify compliance with the green building measures. These inspections will be carried out for all covered projects.

Waivers. The law allows DPS to establish rules providing for waivers of the law’s requirements where compliance would be “impractical or unduly burdensome and the public interest would be served by the waiver.” Code §8-51(c). The regulations provide that such requests are to be addressed through the DPS’ existing process for requesting modification of building code provisions. Reg. §6.0. The Department must submit an annual report to the County Executive and Council listing each waiver granted under the law. Code §8-52.

ENFORCEMENT

The law authorizes DPS to develop standards and procedures for enforcement of the law, including the use of performance bonds. Code §8-51(d). The regulation does not impose bonding requirements, however, and withholding of a Use and Occupancy Certificate is the main enforcement tool currently in place.

OTHER IMPLEMENTATION ACTIVITIES

Fees. The county prepared a fiscal summary of the costs of implementing the law, which concluded that there would be a one-time cost for vehicles, phones, and computers and that there would be an increase in the annual operating costs of the agency for four senior permitting positions. Montgomery County Office of Management and Budget Memorandum on Executive Regulation 19-07 (June 29, 2007). As noted in the summary, the DPS is a fee-supported entity, with revenues established in Executive Regulations or resolutions of the County Council. The Council will consider establishing fees to cover these costs during the county’s fiscal year 2009 budget process. According to officials, the DPS would charge this fee to those projects that do not pursue LEED certification, as a mechanism for recovering the agency’s costs required for the higher level of project review.

Training. Although the policy does not address training explicitly, agency officials expect that there will be training for staff.

PASADENA, CALIFORNIA

Pop. 144,264

OVERVIEW OF POLICY

Prior to adopting its green building ordinance, Pasadena had voluntary green building measures in place, including rebates tied to energy features. According to officials, green building mandates were adopted to increase the number of environmentally sound buildings in the city and to support the city's goal of creating a more sustainable community for future generations. The original green building policy, adopted in 2005, requires commercial and residential building projects that are covered by the ordinance to incorporate green building measures that meet at least the LEED certified level. A 2008 revision to the ordinance increases the requirement for commercial (non-residential) projects that are 50,000 square feet or more; such projects must meet the LEED silver level criteria. Private-sector projects covered by the ordinance are not required to obtain LEED certification, but they must register with the USGBC.

CITATION

Pasadena Green Building Practices Ordinance, Pasadena Mun. Code, §14.90.010 *et seq.*

DATE

December 2005; revised 2008

IMPLEMENTING AGENCIES

Planning and Development Department, Sustainability Section

TYPES OF BUILDINGS

Commercial and Residential (multi-family)

SIZE OF BUILDINGS

Commercial: 25,000 square feet or more
Residential/mixed use: 4 stories or higher

These thresholds were chosen because they represent the majority of the city's development projects, they coincide with thresholds for conditional use permits for major projects, and most are subject to design review. Memorandum from Pasadena City Manager to City Council ("Agenda Report"), 12/19/05, at 2. City officials note that the city analyzed building types for the period 2002-2005 and determined that a majority of projects would be included within these thresholds.

GREEN BUILDING CRITERIA

Framework. Pasadena's green building ordinance adopts by reference the LEED rating system,

including the LEED indoor environmental criteria. The city has modified the LEED framework by not requiring building commissioning. According to officials, the modification reflects the city's concern over the timeline for city verification of the commissioning activity (post-occupancy), as well as the development community's concern about the cost and availability of commissioning agents.

Projects that are 50,000 square feet or larger must meet the LEED silver level, while smaller projects covered by the ordinance must achieve the certified level. As part of the 2008 revisions to the policy, the city also approved a code change to address the water shortage experienced at the state and local level. The LEED credit for 20% water use reduction through standard building fixtures is now a requirement.

DOCUMENTING AND VERIFYING COMPLIANCE

In addition to the ordinance, the city has developed a written document describing the procedures for implementing the ordinance. The document outlines the procedural steps that an applicant must take to comply with the ordinance. See

http://www.cityofpasadena.net/permitcenter/greencity/building/gbprogram.asp#Green_Building_Ordinance.

According to officials, one reason for linking the green building requirements to the project

entitlement process was to avoid time delays for builders. A majority of the green building projects covered by the policy must already engage in a detailed review with the city.

LEED Registration. According to the ordinance, covered projects must register with the USGBC.

Green Building Professional. According to the ordinance, covered projects must retain the services of a LEED Accredited Professional. According to officials, although the city strongly encourages applicants to retain their own LEED-AP as part of the project team, the city also offers applicants free LEED-AP consultant services to guide the project team through the city's green building review process. The city's LEED-AP consultant typically meets with a project team at the outset of the process to discuss the city's ordinance, and to explain the LEED process and LEED criteria in some detail.

Building Permit. Projects must submit a LEED checklist and supporting documentation in conjunction with their building permit application. The checklist and documentation must indicate the green building measures incorporated into the project to reach the minimum number of points required for the LEED certified level. The ordinance further requires that, where feasible, building documents shall indicate in the general notes or detail drawings the green building measures being incorporated. §14.90.050. The Planning and Development Department verifies that a project has been registered with the USGBC, and the agency is charged with ensuring that all appropriate documentation has been submitted prior to issuing a grading or building permit. §14.90.060.

According to officials, applicants are required to incorporate the applicable LEED checklist as a sheet in the plan sets, and are asked to provide a three-point margin for credits that might be compromised during construction. Along with the checklist, the city requests that the project fill out the supporting LEED templates and provide the city's LEED-AP consultant with access to the templates.

All projects are logged in and are routed to the various offices that review different municipal requirements. At this stage, projects are routed

to the city's LEED-AP consultant, who undertakes an initial review of the LEED documentation, including the online templates, and provides comments to the applicant. Once the minimum number of LEED credits has been verified and credits will not be changed by other department reviews, the city provides final sign-off of the checklist. At that point, all of the green building measures are incorporated into the plan set.

Inspections. The ordinance requires the agency to verify that the green building measures included in the project's LEED checklist are being implemented at foundation inspection, framing inspection, and prior to issuance of a final certificate of occupancy. §14.90.060. According to officials, the city conducts regular inspections, though they do not check for all green building measures. Items that are included in the plan set – e.g., waterless urinals -- will be checked T

ENFORCEMENT

The Green Building ordinance authorizes the city to issue a stop-work order for all or part of a project if an inspection reveals that the project does not comply with its approved documentation. The city official may decide not to issue a stop-work order (or to lift an order) if the officials determines that the applicant has made a good faith effort to comply with the requirements of the ordinance. The official may require that the project incorporate "additional reasonable" green building measures to compensate for the project's inability to comply fully with its approved documentation. §14.90.070.

OTHER IMPLEMENTATION ACTIVITIES

Staffing. The city conducted a fiscal analysis as part of the green building policy proposal. The city estimated initial additional costs of \$250,000, including the hiring of a LEED-AP consultant and the provision of a green building outreach and education program. The funding was requested from the city's Building Services Fund Unappropriated Reserve. Agenda Report at 5. The city did provide funding for both the outreach program and for the hiring of the consultant for a period of 18 months. The city is nearing the end of the 18-month period and is seeking an additional \$100,000 to extent the contract. The city may also consider imposing a

fee in the future, to cover the costs of the program.

Training. According to officials, the city's LEED-AP consultant provided four 2-hour training sessions for all city staff involving in the permitting process.

Technical Assistance. As noted above, in conjunction with the adoption of the ordinance, the municipality is offering to projects the services of its LEED-AP to assist the project design team in ensuring compliance with the LEED requirements.

Outreach. The city held a series of 8 seminars and green building tours for building professionals on the new ordinance and green building techniques generally. See <http://www.cityofpasadena.net/permitcenter/greencity/PasaWorkshopFlyer.pdf>.

Incentives. Through its city-owned utility, Pasadena Water and Power, city provides cash rebates for buildings that attain LEED recognition -- \$15,000-\$30,000, depending on the level of certification achieved. Funding is awarded on a first-come, first-served basis. The city will reserve funds after an applicant has provided verification of LEED registration and received its city building permit, and funding is distributed upon showing proof of LEED certification. The city promotes this incentive through its discussion with project applicants, through its green building publications, and at its Building Permit Center green building display. Project applicants are

also advised about the Water and Power Department's other related financial incentives, including water conservation and energy efficiency, fixture rebates, and solar power incentives. See http://www.cityofpasadena.net/waterandpower/pdf/LEED_cert.pdf.

EVALUATION

Officials estimate that there are 12-18 major projects per year subject to the green building requirements. As of December 2007, 26 projects have been submitted for preliminary green building review totaling 3,000,000 square feet, and 12 projects have been submitted for permit review totaling 1,150,000 square feet.

In 2006 Pasadena adopted an environmental action plan following the framework of the U.N. Green Cities Declaration and Urban Environmental Accords. Within the framework of this broader sustainability program, the City Council plans to evaluate the effectiveness and success of the Green Building Practices Ordinance in 2008. See <http://www.cityofpasadena.net/permitcenter/greencity/building/gbprogram.asp>.

The city has incorporated the information from each project checklist into its existing excel spreadsheet system, but has not yet analyzed this data. Officials indicate that the city is considering requiring post-occupancy documentation of environmental measures such as energy and water consumption.

PLEASANTON, CALIFORNIA

Pop. 73,499

OVERVIEW OF POLICY

Pleasanton's 2003 green building ordinance requires commercial projects to achieve a minimum LEED certified rating. Projects are not required to register with the USGBC or obtain formal LEED certification. The ordinance itself contains detailed procedural requirements for documenting and verifying compliance.

Following enactment of the requirements for commercial buildings, the city also began making green building a "condition of approval" for new homes, on a case-by-case basis. The city did not verify compliance for residential buildings initially, but rather introduced this measure in order to prepare the residential building industry for possible future green building requirements. The city later amended the green building ordinance to add requirements for residential buildings, which now must meet the criteria of the GreenPoint Rated system, a residential green building rating system administered by the California-based, non-profit organization, Build It Green.

CITATION

Pleasanton Ordinance No. 1873

DATE

January 2003 (commercial)

March 2006 (residential)

IMPLEMENTING AGENCIES

Planning and Community Development

TYPES OF BUILDINGS

Commercial

Residential

SIZE OF BUILDINGS

Commercial - 20,000 square feet or more of conditioned space

Residential - 2,000 square feet or larger

According to officials, in the past few years most commercial buildings have met this minimum size threshold. With respect to residential development, the ordinance also covers renovations under 2,000 square feet if they occur within five years of original permitting and the original permitting was under 2,000 square feet. This measure aims to ensure that projects are not built in smaller stages to avoid the requirements of the ordinance. §17.50.030(K).

GEOGRAPHIC SCOPE

Private structures within the Downtown Specific Plan are exempt. Historic structures are also exempt.

GREEN BUILDING CRITERIA

Commercial Framework. Pleasanton's green building ordinance incorporates the LEED rating system as its substantive green building framework, including the LEED indoor environmental criteria. The municipality has modified the LEED framework by eliminating the LEED requirement for building commissioning.

Residential Framework. Pleasanton's policy incorporates the residential green building guidelines developed by Build It Green, in collaboration with the Alameda County Waste Management Authority. In conjunction with the guidelines is the GreenPoint Rated checklist, which assigns each strategy a point value within five categories: energy efficiency, resource conservation, indoor air quality, water conservation and community integration and sensitivity. If the home achieves 50 total points and meets minimum point requirements in each category (Energy (11), IAQ (5), Resources (6), and Water (3)), it qualifies as a "GreenPoint Rated" home. The GreenPoint Rated system also includes separate guidelines

and a checklist for multi-family homes. To qualify as a GreenPoint Rated home, multifamily buildings must earn 50 points overall and meet minimum point totals for each category.

Pleasanton does not require projects to be formally certified through Build It Green. The Pleasanton policy requires that projects incorporate the checklists/scorecards into the project blueprints. See

<http://www.stopwaste.org/home/index.asp?page=470>. The city receives grants from Stop-Waste.Org (a public agency in Alameda County), which provides considerable green building technical support in implementing the guidelines.

Indoor Air Quality. The single-family checklist includes 45 points (15%) of design strategies that are listed as “Indoor Air Quality/Health” points. As noted above, a building must achieve a minimum of 5 of these 45 points in order to be considered a green building. The checklist awards 5 IAQ points for obtaining the Energy Star with Indoor Air Package Certification.

The other principal IAQ-related strategies in the checklist include: radon-resistant new construction; CO alarms; combustion safety (*e.g.*, sealed-combustion appliances); high efficiency HVAC filters; mechanical ventilation; and low-emitting materials and flooring.

DOCUMENTING AND VERIFYING COMPLIANCE

The city’s ordinance, an expanded version of a model ordinance developed by Alameda County, establishes fairly detailed documentation and verification requirements for commercial and residential projects. The city has a green building staff person who has primary responsibility for verifying compliance with the green building requirements for both commercial and residential projects. For projects that register with the USGBC with the intention of pursuing LEED certification, the city may reduce the scope of these documentation and oversight requirements. §17.50.070(F). Although residential projects must meet the Build It Green criteria, the city verifies compliance and does not require projects to be certified through the Build It Green program.

Design/Pre-Permitting. Along with an application for design review or planned unit development design review, applicants must submit documentation showing which green building measures they will achieve in the project. This documentation includes the applicable green building project checklist for the rating system used. The ordinance “encourages” applicants to use a green building professional to prepare the documentation, though this is not required. §17.50.050.

According to officials, the city requires applicants to provide a narrative explaining how they will achieve the minimum requirements, though there is no prescribed format for the narrative. Beyond energy calculations, the additional documentation required varies depending on the measures incorporated in the building. For example, if the applicant is claiming to use certain types of products, the city will request that the applicant submit contract language that will be used during the construction phase.

The ordinance requires the city’s Planning and Community Development Department to review the documents prior to holding a design review hearing and to arrange a meeting with the applicant if necessary. §17.50.50. The agency may approve the pre-permitting documentation if it demonstrates that the project will achieve the required green building rating, or it may deny the documentation and/or request further explanation from the applicant. §17.50.60(A).

Compliance with the green building requirements must be listed as a condition of approval on any design review or planned unit development design review approval. §17.50.040 (D). After issuing an approval, the agency must provide a copy at the design review hearing and notify the Building and Safety Division staff of the approval. §17.50.060. A building permit may not be issued unless the city has approved the pre-permitting documentation. §17.50.070.

This green building manager reviews the initial checklist and develops comments on what the applicant will need in terms of conditions and documentation. She then gives this information to the project’s planner, who is the point of contact for the applicant to discuss any issues relating to meeting the green building criteria.

Building Permit. Applicants for a building permit must submit a green building project checklist along with the first building permit plan set submitted. Where feasible, the general notes or individual detail drawings are to indicate the green building measures to be used. §17.50.070. The plan check is carried out in a different department, the Building and Safety Division, which hires plan checkers on contract.

Construction. The Building and Safety Division is required to verify that approved green building measures are being implemented at foundation inspection and framing inspection. The ordinance authorizes additional inspections as needed. §17.50.070(B).

The ordinance authorizes the city to issue a stop-work order for all or part of a project if an inspection reveals that the project does not comply with its approved documentation. The order is to remain in effect until the project complies with its pre-permitting documentation. The ordinance provides the applicant an opportunity to request substitution of green building measures if the originally approved measures are no longer feasible. §17.50.070

Final Permit. The ordinance requires that, prior to final building approval or issuance of a final certificate of occupancy, applicants must submit documentation and a letter from the project architect or contractor showing that the approved green building measures have been incorporated. §17.50.070(D). If the agency finds that the required minimum green building rating has not been achieved, but that the applicant has made a “good faith effort” to comply, the agency may allow final approval of the project and may require alternate green building measures. This determination is made on a case-by-case basis, considering the “availability of markets for materials to be recycled, the availability of green building materials and technologies, and the documented efforts of the applicant to comply....” §17.50.070(E)(1).

If the city finds that the applicant did not make a good faith effort to comply, the city may withhold final building approval or occupancy permit. The city may require additional reasonable green building measures and may issue the final approvals once those measures have been achieved.

§17.50.070(E)(2). The city may also require that further reasonable green building measures be implemented in the operation and maintenance of the project, to mitigate the applicant’s failure to achieve the required green building rating. §17.50.070(E)(3).

Exemptions. An applicant may request an exemption from the ordinance’s requirements due to “hardship” or “infeasibility.” The request, submitted along with the pre-permitting documentation, indicates the reasons for not achieving the minimum points required in the ordinance, as well as which green building criteria can be achieved. The Planning and Community Development agency may grant the exemption and make a determination of the maximum feasible number of credits reasonably achievable for the project. Any member of the City Council or Planning Commission may appeal the granting of an exemption. §17.50.080.

ENFORCEMENT

If an applicant violates the ordinance by failing to build a project in accordance with the project’s plans, pre-permitting documentation or permit approvals, the applicant is subject to the city’s administrative enforcement remedies. These include administrative penalties totaling up to \$100,000. §§17.50.100(A); 1.28.090. In any case where the applicant has not complied with the ordinance, the city may require that further “reasonable” green building measures be implemented in the operation and maintenance of the project. §§17.50.070(d)(3); 17.50.100(B).

OTHER IMPLEMENTATION ACTIVITIES

Staffing. As noted above, in 2005 the agency designated one person – the head of the green building program – as responsible for gathering all information regarding a project’s green building measures and for reviewing this information for the planner who is responsible for the project. Previously, individual planners with different levels of expertise in green building were responsible for reviewing the documentation for their own projects. According to officials, the new staffing is very helpful in ensuring consistency and level of attention to green building these issues. The separation between the green building manager and the applicant is also important for efficient time management. The manager has a

case load independent of this green building review function, which may be feasible due to the fact that there is typically only one green building project at any given time.

Intra-agency Coordination. Within the overall agency responsible for carrying out the policy, there are two separate departments, with separate directors, that share this responsibility. The Planning Department does the initial review of green building measures and sets the conditions for the building permit and construction. But the Building and Safety Division is the office responsible for making sure the requirements are in the plans (through plan check contractors) and are actually built (through building department inspections). The Building and Safety Division has financial and staff constraints, and the program does not rely heavily on inspections.

Training. In addition to providing training for planning department staff, the Planning Department received a grant to pay for free training for the plan check contractors hired by the Building and Safety Division. Officials note that this training is vital to the effectiveness of a green building program.

EVALUATION

The City of Pleasanton's green building policy and codes have required 54 residential properties and seven commercial properties to be built green based on the reporting numbers from 2003 to 2007. In that same time frame, the green building policy and codes have been applied to the development standards for nearly 1,000 residential units and nine commercial units as part of their planned unit development approval.

Program Evaluation. In 2005 the head of the green building program worked with an energy expert to review a handful of projects that had been approved and completed under program. The city determined that there were significant differences between the buildings as built and the checklists indicating the green building measures in the project design. This review led to the staffing changes described above, aimed at ensuring more detailed project review.

Post-occupancy Evaluation. Under the ordinance, the Planning and Community Development agency may require that an applicant submit documentation relating to operation, efficiency and conservation credits after one year and/or five years of occupancy. §17.50.070(D). The city has not yet required this type of documentation.

SANTA CRUZ, CALIFORNIA

Pop. 54,593 (2000)

OVERVIEW OF POLICY

The city of Santa Cruz adopted an ordinance revising its zoning code to create green building requirements and incentives for residential and commercial new construction, additions and certain remodels. Covered projects must achieve a minimum number of points from the commercial or residential green building checklists developed by the city. The commercial checklist is similar to the LEED checklist, however the total points required by the city is well below the minimum point totals required for LEED certification. The minimum point total required for residential projects increases as the size of the building increases.

The city created a low minimum green building threshold in part to make it easier for projects to comply and for the municipality to ensure compliance and enforcement. However, the ordinance establishes two types of incentives for projects to exceed the minimum required point levels – expedited review (see Policy Summary in Appendix B) and a city-issued Green Building Award. The ordinance was based on a proposal developed over a three-year period by a citizen’s Green Building Working Group, which had been initiated through the City Council.

CITATION

Santa Cruz Ordinance 2005-29; Santa Cruz Municipal Code, Chapter 24.15

DATE

January 2006

IMPLEMENTING AGENCIES

Department of Planning and Community Development

TYPES OF BUILDINGS

Commercial
Residential

SIZE OF BUILDINGS

Commercial: 1,000 square feet or more
Residential: 350 square feet or more

GREEN BUILDING CRITERIA

Framework. Santa Cruz developed two separate checklists that use a flexible, point-based system for selecting green building features. The commercial checklist is based on the LEED-NC version 2.1 checklist including the LEED indoor environmental criteria. The Santa Cruz commercial checklist, however, does not establish any prerequisites and offers points for most of the LEED prerequisite items. The city requires that

projects earn only seven points from the checklist (compared to 26 points required by the USGBC for the minimum level of LEED certification.) See Santa Cruz Green Points Checklist for Non-residential Buildings, at <http://www.ci.santa-cruz.ca.us/pl/gbwg/AppendixC-Non-ResidentialChecklist.pdf>.

Santa Cruz’ residential checklist is consists of a variety of optional green building measures divided into several categories, totaling 460 points. Projects can select measures from any category. The number of points required increases with every 100 square foot increase in house size. A 2,500 square foot house would require 43 points, while a 3,500 square foot house would have to achieve 58 points. See Santa Cruz Green Points Checklist for Residential Buildings, at www.ci.santa-cruz.ca.us/pl/gbwg/AppendixB-NewHomeGreenPointsChecklist.pdf.

The checklist includes a variety of indoor air quality measures relating to: combustion safety (venting range hoods, garage exhaust fans, eliminating wood-burning fireplaces, use of sealed combustion appliances); ventilation (ductwork installation, whole-house fans, HEPA filters, attic ventilation); low-emitting materials and flooring; and formaldehyde-free engineered wood.

DOCUMENTING AND VERIFYING COMPLIANCE

In developing its green building ordinance, the city did a general fiscal analysis and concluded that the program would require additional staff time to handle increased plan checking and inspection requirements. Because Santa Cruz was facing difficult economic circumstances at the time the green building program was developed, the city rejected the option of hiring new staff and sought to minimize the burden on existing staff for overseeing compliance with the new requirements. See City of Santa Cruz Planning Commission Agenda Report_(8/18/05) at 2. The city established a one-year phase-in of its green building requirements, during which covered projects were required to submit checklists, but were not required to meet the minimum point totals. Beginning in January 2007, the minimum green building requirements were in effect for all covered projects.

Building Permit Review. Under the ordinance, every covered project must submit the appropriate green building checklist along with the building permit application. The plan set must show clearly the green building measures that are to be incorporated into the project. §24.15.060. As noted in the checklists, a separate table must be included on either the title sheet or on the index sheet detailing what measures are being taken to comply with the green building requirements and referencing specific plan pages.

The green building documentation is routed to the deputy building official, who coordinates the city's green building oversight process and reviews all new projects to verify that they meet the minimum green building thresholds. According to officials, the initial review is often followed by a letter to the applicant to require more details regarding green building measures, and these letters are usually sufficient to produce the documentation necessary for approval.

Inspections. According to officials, if any of the green building measures require special verification through the building inspection process, the plans are stamped as such during the plan review. Building inspectors then ensure that items stamped in the plans are documented during the inspection process. This includes items that might not ordinarily be covered in the inspection

process. For example, inspectors might ask to see paint can labels to verify the use of low-VOC paints, or they may ask to see load tickets from supply yards to verify the use of fly ash in concrete. Where such documentation is unavailable, inspectors might request an affidavit from the project owner. Officials note that a building permit is not issued until the minimum green building threshold is met.

ENFORCEMENT

The city established green building requirements that would be easy to meet, and according to officials, the city has not had significant compliance problems. For projects that participate in the incentive program, the city meets with the project team following the final inspection to do an audit of the green building measures included in the projects. At that time, if items that were included in the plans are not documented, the city may require substitution of other green building measures.

OTHER IMPLEMENTATION ACTIVITIES

Fees. The green building ordinance establishes a fee for all permits issued by the city in an amount "equal to .0025 times the overall valuation of the project." §24.15.080. Sub-trade permits are exempted, as are permits associated with a master permit. Fees are deposited into a newly created revolving Green Building Education Fund, which is maintained by the city's finance department. The fund is used for staff salaries and outreach and education activities.

Incentives. As noted above, Santa Cruz provides expedited for projects that exceed the minimum requirements and achieve a higher point total under the relevant checklist. (See Policy Summary, App. B.) The city also issues a green building award – which includes a plaque and a certificate that may be displayed in the building -- to projects that achieve the highest level of points under the checklists. In 2007, many residential permit applicants sought to qualify for one or both of these incentives by incorporating green building measures beyond the minimum requirements. Officials estimate that of the nearly 200 residential permit applications that have been processed, 30 have qualified for expedited plan check, and 16 of these have also qualified for awards.

Staffing. As noted above, the city did not hire new staff when the program was created. However, the city upgraded a senior building inspector to the position of deputy building officials in order to handle the green building oversight responsibilities. According to officials, it was expected that this senior inspector would devote about 15% of his time to reviewing green building documentation. Due to the pace of new construction, however, this review has required more time. An intern has provided additional staffing, and the agency recently hired an assistant to help with green building review responsibilities.

Education/Training. Outreach to the building community has been an emphasis of the Santa Cruz program, according to officials. In 2007, the city participated in 28 meetings, trainings or presentations about the green building program. These events were held for contractors and other building professionals, local groups and the public at large. Santa Cruz officials have also done extensive outreach to other municipalities in and around Santa Cruz County, to

promote consistency in green building design and construction in the region. Officials note that 4 other jurisdictions in the area recently adopted green building policies, using the Santa Cruz program as a model.

EVALUATION

According to officials, the city completed 197 residential plans checks and 8 non-residential plans checks in 2007. City officials keep a database with information about the green building features of each new project.

According to officials, the green building policy was created as a living document, and the city expects to revise the program requirements in 2008 to increase the minimum green building requirements and to modify some of the individual green building criteria. For example, for multifamily projects, the program is considering requiring that the project team and its subcontractors attend a pre-construction meeting with the building department to ensure that all parties understand the project's green building measures.

WASHINGTON, D.C.
Pop. 581,530

OVERVIEW OF POLICY

The District's green building law phases in requirements for new construction and substantial improvement of private, commercial (non-residential) buildings, beginning in 2009. Ultimately, covered projects must be verified as having fulfilled the LEED certified-level standard. The law authorizes verification by District agency officials or by third-parties approved by the government, and the law directs the District to promulgate implementing regulations.

CITATION

Green Building Act, D.C. Bill 16-515

DATE

November 2006

The mandatory elements of the law are phased in for private-sector buildings from 2009 and 2012.

IMPLEMENTING AGENCIES

Dept. of Consumer and Regulatory Affairs
Dept. of the Environment

TYPES OF BUILDINGS

Commercial (non-residential)

SIZE OF BUILDINGS

Projects with at least 50,000 square feet of gross floor area

GREEN BUILDING CRITERIA

Framework. The District's requirements for private, commercial projects are based on the LEED rating system criteria, including that system's indoor environmental quality criteria. The law does not modify the LEED criteria, but it does authorize the city to propose rules to adopt other rating systems.

The law provides that residential projects participating in the grants incentive program may use either the LEED rating system or the Green Communities criteria developed by the Enterprise Foundation. §7(b)(3).

DOCUMENTING AND VERIFYING COMPLIANCE

Because the law's minimum green building standards for private development do not take effect until 2010 and 2012, and because regulations have yet to be adopted, the District has not final-

ized various details relating to implementation of the law.

Documentation. The law requires green building documentation at the building permit phase. Beginning January 2009, all covered projects must submit a green building checklist along with their building permit application. §4(a). The law does not specify any other documentation requirements.

Verification of Compliance. The law does not require review of, or verification of compliance with, the green building checklist for most projects until after January 1, 2012. Thus, for the first three years of the law, most covered projects are required simply to submit the checklist. Beginning January 2012, all covered projects that submit their first building permit application must be verified as having met the LEED certified level requirements (LEED-NC 2.2 or LEED-CS 2.0). (This requirement takes effect two years earlier – January 2010 – for covered projects that result from a sale of property from the District to the applicant). §4(b).

The law does not establish detailed procedures for verifying compliance. The law states that projects must be verified as complying with the minimum LEED criteria within two years of receiving a Certificate of Occupancy. §4(b). The city must conduct this compliance review either "through an agency of the District government or through third-party entities" that meet criteria established by regulation. §5(1).

The District has not yet established detailed procedures for verifying compliance. According to officials, the city is considering the possibility of implementing the law by requiring third-party certification through the USGBC (that is, to re-

quire LEED certification), in order to help reduce the staff time required to ensure compliance.

Exemptions. The District is authorized to grant an exemption from the law's requirements in "unusual circumstances and only upon a showing of good cause" in cases involving cases of infeasibility or hardship. The District may also extend the period for verifying compliance for up to three successive four-month periods. § 11.

ENFORCEMENT

Performance Bond. All projects subject to the green building law must provide a performance bond – ranging from 2%-4% of the building's cost, up to a maximum of \$3 million – prior to receipt of a Certificate of Occupancy. If a project fails to provide verification of compliance with the law's green building requirements, the bond is forfeited to the District. §6.

OTHER IMPLEMENTATION ACTIVITIES

Funding. The law requires the District to establish a green building fee by increasing building construction permit fees by \$0.0020 per square foot for new construction (and between .065% and .13% of construction value for alterations). These fees – as well as any other monies collected under the law – are to be deposited in a newly-established Green Building Fund. The Fund is to cover the staff and operating costs of implementing the law, as well as the incentive program described below and general public education activities. §§8, 9. According to officials, the District has begun to collect these fees. They will be used principally to hire staff within the DCRA to implement the law.

Incentives. In addition to the green building requirements, the District law requires the city to create an incentive program to encourage early adoption of green building practices by commercial and residential building projects. The law

directs the District government to include in the incentive program a program of expedited review of construction documents. [See Policy Summary in Appendix B.]

The law also authorizes the District to establish a grant program for commercial projects that meet the law's green building criteria before they are required to do so, or that exceed the criteria once the law's mandatory provisions take effect. The grant program would also apply to residential projects that incorporate green building measures, even though not required under the law. §7(b). Thus far, the District has not created the grant incentives program, which is to be funded by monies in the Green Building Fund, subject to availability. §7.

Advisory Council. The green building law establishes a public-private Advisory Council to monitor the District's compliance with the law, make policy recommendations to improve implementation of the law, and evaluate the effectiveness of the law. The Council is to meet at least six times each year and is to issue an annual report of its recommendations. §10.

Construction Code Development. The law directs the District to submit to the legislature proposed construction code revisions that incorporate "as many green building practices as practicable," including an update of the energy code to the standards of IECC 2006. The law also requires that the city report bi-annually to the legislature on progress in revising the code. §13.

EVALUATION

Under the law, the Green Building Advisory Council is charged with evaluating "the effectiveness of the District's green building policies and their impact on the District's environmental health, including the development of the District's green building policies to the specific environmental challenges facing the District." §10

Appendix B

EXPEDITED REVIEW POLICY SUMMARIES

Anaheim, CA
Arlington County, VA
Chicago, IL
King County, WA
San Francisco, CA
Santa Cruz, CA
Santa Monica, CA
Sarasota County, FL
Scottsdale, AZ
Washington, DC

ANAHEIM, CALIFORNIA

Pop. 344,141

OVERVIEW OF POLICY

In 2006, the Anaheim City Council passed a Resolution proposed by the city-owned Anaheim Public Utilities, addressing a variety of energy and environmental goals. Among other things, the Resolution requires most city building projects to achieve LEED certification and also states that: "Developers and builders in Anaheim shall be encouraged to receive LEED™ registration and certification." Anaheim Public Utilities, which has had water and energy efficiency programs for many years, developed a new green building incentive program following enactment of the Resolution. The program establishes expedited plan check and other incentives for building projects that commit to third-party green building certification.

CITATION

Anaheim City Council Resolution 2006-187; Anaheim Public Utilities Green Connection Program

DATE

August 2006

IMPLEMENTING AGENCIES

Anaheim Public Utilities
City of Anaheim Planning Department

TYPES OF BUILDINGS

Commercial, Residential

GREEN BUILDING CRITERIA

Framework. Anaheim's incentive program requires participants to commit to green building certification by a third-party entity, however the program does not establish a particular set of green building criteria or a rating system that must be used by participants. Nevertheless, to date all participants have used either the LEED rating system or the residential rating system of Build It Green, a California-based non-profit organization. See <http://www.builditgreen.org/>. (That program is described in more detail in the Policy Summary for Marin County.)

KEY ELEMENTS OF THE INCENTIVE

Criteria. To qualify for priority processing and other incentives, projects must commit to achieving green building certification from any third-party rating system approved by the utility. According to officials, the city will accept most established green building rating systems that provide for third-party verification. To date, participants in the program have used either the

LEED system or the California-based Build It Green residential rating system.

Expedited Review Incentive. Under the program, projects receive expedited plan check, with the city putting green building projects to the front of the line and providing a turn-around time of 10 working days for the initial plan check. According to officials, this compares to about 20 working days for other projects. (The city also provides expedited permitting for any project that is willing to pay extra for it.)

Other Incentives. Along with expedited review, green building projects receive a *plan check fee reduction* up to \$50,000.

Another significant financial incentive for green buildings is a *monetary reimbursement* for costs associated with certification or third-party raters. If a project achieves LEED certification, the city will reimburse: \$15,000 (certified level), \$20,000 (silver); \$25,000 (gold), and \$30,000 (platinum). For projects that pursue a different third-party certification, the program will reimburse up to \$1,000 per home, up to a maximum of \$6,000 per residential development project.

In addition, the utility offers projects free green building *technical assistance* through a third-party consultant with whom the utility contracts. Developers working to incorporate green building features into their projects may submit their plans to a green building professional and receive up to 10 hours of free consultation on how to incorporate green strategies, with the city paying for the service.

DOCUMENTING AND VERIFYING COMPLIANCE

Pre-Permit Application. According to officials, most participants in the incentive program begin working with the utility's Green Building Program prior to plan check. During the pre-file stage, the Planning Department generally provides information about the incentive program to project teams and also provides project information to the Green Building Program. Some projects approach the utility on their own after having heard about the program independently.

Building Permit. When applying for a building permit, projects that wish to participate in the incentive program submit a green building checklist for the third-party rating system they are using, along with a Green Building Plan Check Fee Waiver Incentive Agreement. This form includes information about the third-party rater or organization that will be certifying the project. It also contains an agreement clause through which the builder commits to achieving green building certification. The Green Building Program managers review the form and approve projects for expedited review and fee waiver.

ENFORCEMENT

The Plan Check Fee Waiver Agreement completed by the applicant states that: "If green building certification or rating is not met for the facility under this application, reimbursement for all fees waived as an incentive is due and payable to Anaheim Public Utilities."

OTHER IMPLEMENTATION ACTIVITIES

Inter-agency Coordination. The incentive program has been developed, managed and funded by the Anaheim Public Utilities. The utility's Green Building program works closely with the city's

Planning Department, which is responsible for carrying out the expedited review for qualifying projects. Other city agencies, including the economic and community development program, help provide outreach and assistance to projects to support the green building program.

Resources. Anaheim Public Utilities provides funding for the incentive program's fee reduction, LEED grants, and technical consulting. In the case of fee reductions/waivers, the utility in effect transfers to the Planning Department the amount of funding necessary to offset the Department's lost fees.

EVALUATION

Through 2007, ten private-sector green building projects had been approved and had gone through the expedited plan check process, though none had been completed. Two of the projects were commercial developments. Several other projects are in preliminary stages and intend to participate in the program.

According to officials, expedited plan review has been an important incentive for encouraging green building, but the success of the program also reflects the comprehensive package of incentives that is offered – including technical assistance, fee reductions, and the other direct financial incentives that are available. In addition, over the short time the program has been in effect, the green building field has developed considerably, and building professionals have come to acknowledge that green building will be required or expected in the future.

ARLINGTON COUNTY, VIRGINIA
Pop. 199,776

OVERVIEW OF POLICY

Arlington County's Green Home Choice Program is a voluntary program open to residential builders who agree to comply with the program's Green Home Choice building criteria. Participating builders receive incentives including expedited plan review and assistance, in addition to green building certification and promotional materials.

CITATION

Arlington County Green Home Choice Program

DATE

May 2003

IMPLEMENTING AGENCIES

Arlington County Department of Environmental Services

TYPES OF BUILDINGS

Residential (single-family)

GREEN BUILDING CRITERIA

At the time the county's incentive policy was established, there were fewer residential green building guidelines available. The county is currently reviewing its program and is considering whether to incorporate alternative systems, or whether to establish different levels of incentives for projects that pursue higher levels of green building.

Framework. Arlington County's Green Home Choice Scoring Worksheet and Guidelines are based on the Earth Craft House program, a green home rating system designed by the Southface Institute. Builders earn points for using green building measures that are included in the worksheet under six different categories: site use, energy, indoor air quality, building materials, solid waste, and water. A project must earn 175 points to be certified under the program. All of the individual green building measures listed in the worksheet are optional, though projects must meet certain energy conservation prerequisites and must also prepare a homeowner's manual outlining the homes green features.

The program includes a significant emphasis on EPA's Energy Star program, and projects can obtain a large number of points for complying with Energy Star requirements.

Indoor Air Quality. The IAQ section of the criteria includes a total of 80 optional points, and is divided into four parts -- combustion safety, moisture control, ventilation, and materials -- each of which includes several individual design/construction strategies.

KEY ELEMENTS OF THE INCENTIVE

Although the program is not formalized through ordinance or regulation, the county has developed formal green building criteria for the program and has provided a written summary of the program. See <http://www.arlingtonva.us> (search "Green Home Choice").

Criteria. To qualify for priority processing, projects must be residential and must comply with the Green Home Choice building criteria developed by the county.

Expedited Review Incentive. According to officials, expedited permitting projects move to the head of the line for plan review. The difference in plan review time is about 1-2 weeks for fast-track projects, compared to 4-5 weeks for regular projects.

Other Incentives. In addition to providing expedited review, the program certifies homes as meeting the Green Home Choice standards, lists projects on the program website, provides promotional materials including job site signs, and offers educational resources to participating projects.

DOCUMENTING AND VERIFYING COMPLIANCE

Initial Application. Builders who wish to participate in the program are asked first to speak with the program manager and to sign an intent form. At this stage, the Environmental Planning Office works closely with the applicant to ensure that the project as planned will meet the Green Home Choice criteria. The project is then designated as a “green home” project and is assigned a plans examiner and a building inspector who both track the progress of the project.

Building Permit. When applying for a building permit, participants submit a Green Home Choice scoring worksheet, which indicates the green building measures that will be incorporated in the home. The worksheet also includes a statement affirming that the builder intends to construct the home to the standards of the program. See http://www.arlingtonva.us/Departments/EnvironmentalServices/epo/pdf/files/gh_worksheet.pdf.

Inspections. The Green Home Choice program includes two county field inspections to ensure compliance. One is a pre-drywall inspection, and the other is carried out near project completion. According to officials, the county tries to integrate these with the other inspections required for a project.

In order to obtain green building certification once a home is completed, participants must submit a final Green Home Choice worksheet and appropriate supporting documentation, along with a final inspection report conducted by the program inspector.

ENFORCEMENT

The county’s program does not establish penalties in the event a project receives the incentive and then fails to meet the green building requirements. According to officials, the county has not had a problem with projects that do not meet the Green Home Choice criteria upon completion.

OTHER IMPLEMENTATION ACTIVITIES

Advisory Committee. The county initially established a Green Home Choice Committee, an advisory group to help develop the program. The committee no longer exists, but could be reconstituted if the county decides to change the program.

Staffing. The county did not do a formal fiscal analysis or provide additional staff resources for the program. According to officials, however, an important part of the incentive program has been the availability of existing staff to oversee its implementation. There is a project coordinator within the Environmental Planning Office who consults with the applicant on the project’s green building measures. There is also one plan reviewer and one building inspector who have received green building training and have principal responsibility for the program.

Education and Outreach. The county hosts green home events (seminars, speakers, workshops, open houses) on various topics throughout the year. Participants in the program are encouraged to attend a county-sponsored green building educational event.

EVALUATION

According to officials, 17 homes have participated in the expedited permitting program. Because there are no subdivision developers in Arlington, green building is still a niche market in the single-family home context. In addition, in contrast to the review process for large buildings, the county doesn’t have extensive contact with single-family residential builders during the permitting process. Thus, more extensive outreach is important in order to bring about greater participation in the program.

CHICAGO, ILLINOIS

Pop. 2,749,283

OVERVIEW OF POLICY

The city of Chicago has a number of different green building policies and programs. For private development, the city has created an expedited permitting program for any project that obtains certification under either the LEED rating system or the city's own residential green building program. The city also provides a monetary incentive that is integrated with the expedited review program: Building projects that incorporate higher levels of green building may be eligible for a waiver of certain fees. In addition to expedited processing and fee reductions, Chicago's program is notable for dedicating green building staff to work closely with applicants and to help guide green building projects through the permitting process.

CITATION*Chicago Green Permit Program***DATE**

April 2005

IMPLEMENTING AGENCIES

Chicago Department of Buildings

TYPES OF BUILDINGS

Commercial, Residential

GREEN BUILDING CRITERIA

Framework. Chicago uses the LEED rating system for commercial projects. For residential projects, the program uses Chicago Green Homes, a city-developed, checklist-based system for single-family and multi-family residential construction and renovation projects. The checklist, which includes certain mandatory elements, is organized by categories: sustainable sites; energy efficiency, materials; health and safety; resources conservation; homeowner education; and innovation. The Chicago Department of Environment, which runs the program, certifies homes as achieving 1-3 stars within the program, depending on the number of green building measures and points achieved. The agency contracts with outside reviewers to review projects for compliance. The Green Permit program requires projects to achieve at least a 2-star rating. The city will also accept projects pursuing LEED-Homes certification.

To supplement these rating systems, the city has developed a list of green building measures to form a "menu." Applicants must incorporate one, two or three of these items, depending on

the level of financial incentives sought. The menu includes: exceptional energy performance, green roofs; renewable energy; transit-oriented development; water management; exceptional bike parking; and natural ventilation.

Indoor Air Quality. The Chicago Green Homes checklist includes a section on Health and Safety, which incorporates several IAQ-related measures. There are two mandatory elements, a prohibition on unvented fireplaces and a requirement for a full exterior drainage plane. Other optional IAQ items are included in the areas of: radon resistant new construction; formaldehyde-free materials; mechanical ventilation & filtration; low-emitting finishes; combustion safety; and moisture management.

KEY ELEMENTS OF THE INCENTIVE

Chicago's expedited permitting program, an initiative of the Mayor, is not formalized through ordinance or regulation. The Department of Buildings has developed formal, detailed guidelines for the program. See <http://egov.cityofchicago.org/DCAP> ("green permit"). The department also has prepared written descriptions of the submittal requirements for participating projects.

According to city officials, the success of Chicago's program is due largely to the provision of comprehensive permit coordination services to participating projects. Program participants are particularly drawn to the availability of a Green Permit program staff member who is knowledgeable about the city's permitting system and requirements (in addition to understanding green building) and who is available to help navigate

this system. This is an important benefit in addition to the reduced permitting time and potential fee reduction.

Criteria. To qualify for the expedited permitting program, commercial and large residential projects must achieve LEED certification. Small residential projects must comply with the Chicago Green Homes standard, a rating system developed by the city. According to city officials, the program will also accept residential projects that are seeking certification through the LEED-Homes rating system. In addition to achieving certification through one of these systems, the city has created a menu of green building items that most projects must select from in order to participate.

Expedited Review Incentive. The program provides a building permit turn-around time of 30 business days, which corresponds to the time between submission of the building permit application with complete drawings, and the time a building permit is issued. Program officials note that for large commercial projects, this turnaround time compares to an average of about 90 days for permitting non-expedited projects. On the other hand, the incentive is not particularly valuable to very small residential projects whose builders are familiar with the permitting systems, as those projects can often be permitted within a week.

The turnaround time of 30 working days is broken down as: 2 weeks for agency review, 2 weeks for the applicant to respond to the review, and 2 weeks to address other issues that arise. Officials note that many participating projects do not achieve the 30-day goal, mainly because they do not respond in a timely manner once the agency has completed its review.

Other Incentives. In conjunction with expedited review, the city offers *fee waivers* for applicants that are subject to the Developer Services program, which requires outside consultants to conduct plan reviews for large, complicated projects. Normally such projects are required to pay the consultant's fee, which ranges from about \$5,000 - \$50,000. The Green Permit Program offers a waiver or a reduction of this consultant review fee, based on the extent to which green measures are incorporated. Small residential development would not be eligible for this incentive, as they

are not subject to the Developer Services requirement.

According to officials, in 2008 the city will be eliminating the separate Developer Services consultant review fee and increasing the building permit fees accordingly. As a result, the Green Permit program will change its financial incentive to a building permit fee reduction. This will have the effect of allowing small residential projects to obtain a financial incentive.

There are three levels, or tiers, of incentives that are available to applicants, combining the expedited permitting and fee waiver elements: (1) 30-day permitting with no fee waiver; (2) 30-day permitting plus up to \$25,000 of consultant review fees waived; and (3) 30-day permitting plus 100% of consultant review fees waived. The program guidelines include a chart showing the requirements for each incentive level for 12 different types/sizes of building projects. These requirements were revised, effective January 1, 2008. According to officials, more stringent eligibility criteria were established to reflect the growth of the program and the increase in increase in participation.

DOCUMENTING AND VERIFYING COMPLIANCE

Applicants for expedited permitting must demonstrate compliance with the green building requirements prior to submitting their building permit application. The city provides extensive assistance to participants in the pre-building permit phase, in order to help ensure that the project is processed as efficiently as possible.

Pre-permitting Coordination and Documentation. According to program officials, a key feature of the program is early consultation with applicants. Typically, larger projects contact the Green Permit program 3-4 months prior to submitting a building permit application, and program staff work with the project over the course of those few months (usually meeting more than once) to discuss how the project will achieve certification and to help coordinate the requirements of other city agencies (*e.g.*, planning, zoning, transportation). The Green Permit program staff work with applicants to help explain those requirements and resolve potential conflicts.

Approximately 4-6 weeks prior to permit submission, LEED projects submit 50% construction documents and their green building documentation for the Green Permit program's Preliminary Review Meeting. This documentation includes: (1) a LEED registration number, (2) a LEED scorecard, (3) a green permit narrative, (4) identification of Menu Item(s) selected, and (5) in some cases, specifications demonstrating how green building measures will be achieved.

According to officials, the green permit narrative is the key component of the documentation, as it describes how the applicant intends to achieve each green building credit. Though the city provides an example of a model narrative, the quality of the narrative typically corresponds to the applicant's green building experience.

The Green Permit program hires consultants to review the green building documentation for LEED projects to ensure that the project will comply with the LEED criteria. According to officials, this typically requires 3-4 hours of consultant time, and the program aims to complete the review within one week. The applicant then must respond to any comments and obtain final approval of the narrative.

Once a LEED project is approved for expedited permitting, the applicant signs a contract indicating that the project will comply with the green building measures included in the green building narrative, which is attached to the contract. These contracts are modified versions of the contracts that all Developer Services projects must sign.

Chicago Green Home projects must submit a CGH checklist, which also indicates the page number in the drawings on which the design element is specified. For items not included in drawings, additional documentation is required. This information is generally submitted to the Green Permit program 2-3 weeks before the permit submission, and it is then forwarded to the CGH program for review. Once approved for participation in the expedited permitting program, larger CGH projects sign contracts that incorporate the approved CGH checklists, while smaller projects incorporate the checklist in the final permit plans.

Building Permit. According to officials, projects may be double checked during the building permit phase if any green building features remained in question after the preliminary review.

Post-construction. Projects are required to submit proof of LEED certification or Chicago Green Home certification within 180 days of project completion.

ENFORCEMENT

If the project fails to obtain LEED certification, the owner is barred from future participation in the Green Permit program. If the project is still under construction, the city might also seek a refund of any waived fees. Chicago Green Homes projects that fail to comply are subject to refund of any waived fees and possible building permit revocation.

OTHER IMPLEMENTATION ACTIVITIES

Staffing. When the Green Permit program was created, a manager was hired to oversee the program. Two years later, a second staff person was added to the program. These staff provide the close coordination and review of projects described above.

Resources. The city has also budgeted money from the city's general fund each year to cover the consultant fee waivers.

EVALUATION

According to officials, 19 permits were processed through the Green Permit program in 2005. In 2006, there were 71 permits, and this number jumped to 144 in 2007. This includes a considerable number of large residential projects (affordable housing projects, condominiums, apartment buildings), as well as commercial projects.

The Chicago Green Home program maintains a database with information about each project's green building features (from the checklist). The Green Permit program is beginning to maintain this information for LEED projects and is considering requiring projects to provide information on a building's water and energy use in the future.

KING COUNTY, WASHINGTON

Pop. 364,498 (unincorporated)

OVERVIEW OF POLICY

King County has established a broad program of incentives to encourage green building. In addition to financial incentives, the county offers priority processing for residential projects that meet the green building criteria developed by Built Green, a private, non-profit residential green building program. Along with priority processing, the county provides free project management services for participating projects. In 2008, the county updated the incentive program to establish tiered incentives for different levels of green building.

CITATION

King County DDES Green Building Program Incentives

DATE

2006; revised 2008

IMPLEMENTING AGENCIES

King County Department of Development and Environmental Services (DDES)

TYPES OF BUILDINGS

Residential

GEOGRAPHIC SCOPE

Unincorporated King County

GREEN BUILDING CRITERIA

Framework. The King County incentive program uses the residential building rating program developed and operated by Built Green, a residential building program of the Master Builders Association of King and Snohomish Counties, developed in partnership with King County, Snohomish County, and other agencies in Washington State. The system has flexible, point-based checklists for single-family homes, multi-family homes, additions/renovations, and communities.

The Built Green checklist for single-family homes includes green building measures in the areas of Site and Water, Energy Efficiency, Health and Indoor Air Quality, and Materials Efficiency. Participating homes may achieve between one and five stars, depending on the number of green building measures incorporated. While the checklist is structured as a set of optional measures, projects at the four and five-

star levels must include specified required elements in each category. Projects seeking recognition at the 4-star and 5-star levels must also hire third-party verifiers who have been approved by Built Green and who follow program verification guidelines to ensure that projects have met the standard. The multi-family checklist and rating system is similar in structure.

Indoor Air Quality. Both the single-family and multi-family checklists include numerous IAQ optional measures, as well as certain required measures for 4-star and 5-star projects. Indoor air quality considerations make up a possible 247 possible points on the single-family checklist, and include measures in the following areas: jobsite operations, layout and material selection, moisture control, air distribution and filtration, and HVAC equipment. Five-star projects must: use low toxic/low-VOC paints; ventilate during drywall sanding and wet finish applications; use composite wood of exterior grade or with no added urea formaldehyde; and eliminate attached garages unless they are air sealed from the house with an automatic exhaust fan.

KEY ELEMENTS OF THE INCENTIVE

There is no formal written ordinance or resolution establishing the county's green building incentives. The original program was presented in an informational bulletin issued by the Department of Development and Environmental Services. See DDES Customer Information Bulletin 55, at <http://www.metrokc.gov/ddes/acrobat/cib/55.pdf>. The bulletin is being updated to reflect revisions to the program.

Criteria. To qualify for priority processing, single-family homes must achieve a 4-star or 5-star rating under the Built Green rating system, while multi-family projects must achieve a 5-star rating. King County supported development of the Built Green program, and officials note that county agencies and area builders have had extensive experience with this system.

Expedited Review Incentive. King County provides expedited plan review for qualifying projects. According to officials, the program does not provide specific turn-around times, and the review time will vary depending on the complexity of the project and the manner in which the project team provides the necessary paperwork. The program has not yet had sufficient participation to provide a general comparison of review times for expedited projects and non-expedited projects.

DDES accomplishes expedited review by placing projects at the front of the line at permit intake. The project is assigned to a senior project manager who is the single point of contact and coordinator throughout the permitting process.

Other Incentives. In conjunction with expedited review, the county provides *free project management services*. As a fee-based agency, the DDES charges projects an hourly rate for staff time during the building permit process. Green building projects may receive a certain number of free hours of project management. Five-star, single-family homes that are under 1,500 square feet receive 8 free hours, while those under 5,000 square feet receive 5 free hours. Four-star homes are eligible for 3 free hours. Multi-family buildings and town homes may receive 15 free hours if they achieve a 5-star rating.

The DDES also offers *free green building technical assistance* to all building permit applicants, through its green building program Coordinator. Although DDES is a fee-based agency and charges an hourly rate for staff time involved in permitting, it does not charge for this green building assistance, which is funded through the county's solid waste program. This assistance is aimed at helping projects incorporate green

building measures before they apply for a building permit.

The county also provides *green building grants* for residential and commercial projects that achieve green building certification. King County Department of Natural Resources and Parks (DNRP - Solid Waste Division) provides grant funding on a competitive basis to projects that achieve LEED silver, gold or platinum certification, with grants ranging from \$15,000 - \$25,000, depending on the level of certification. The county has developed a written Application form and Guidelines that are published for each grant cycle. See 2007 LEED™ Grant Application, and Guidelines, at www.metrokc.gov/dnrp/swd/greenbuilding/documents/LEEDGrantApplication_2007.doc

In addition, the DNRP and Seattle Public Utilities have developed a grant program for single-family homes and single-family home development projects that receive a 4-star or 5-star Built Green rating. The grants range from \$2,500 - \$15,000 depending on the size of the project and the rating achieved. Written guidelines for the incentive program are available through the Built Green web site. See <http://www.builtgreen.net/incentive.html>.

DOCUMENTING AND VERIFYING COMPLIANCE

According to officials, participating projects must submit a draft Built Green checklist along with their building permit application. They must also an agreement form, affirming their intent to achieve a 4-star or 5-star rating.

The checklist is reviewed and approved by a third-party verifier through the Built Green program. It is then taken into the system to be processed by DDES. Ultimately, projects must submit proof of Built Green Certification and the final checklist becomes part of the project's completed file.

ENFORCEMENT

If a participating project fails to meet the green building requirements, the county may recoup any waived project management fees.

OTHER IMPLEMENTATION

ACTIVITIES

Training and Education. According to officials, DDES staff are quite familiar with the Built Green system, given its wide use in the region. DDES annually conducts a series of green building workshops for its staff. In addition, the Solid Waste Division of the Department of Natural Resources and Parks supports a variety of educational programs for suburban cities located within King County, to encourage them to adopt green building programs.

EVALUATION

According to officials, only a few projects have participated in the expedited permitting incentive thus far. Officials expect the numbers to increase due to marketing of the incentives and growing interest in green building in the county.

SAN FRANCISCO, CALIFORNIA

Pop. 744,041

OVERVIEW OF POLICY

The San Francisco Municipal Code requires the city to process building permit applications in the order received, unless the city makes a written finding of a public policy basis for not doing so. In 2006, two city agencies – the Department of Planning and the Department of Building Inspection -- established policy guidelines for priority processing of permits for new construction projects that meet green building criteria. Under the two policies, the city provides expedited review for buildings that achieve a LEED gold-level certification or the equivalent. [This summary does not cover the expedited review policy of a third municipal agency, the Department of Public Works, which applies to review of applications for permits to use the public right of way.]

In 2008, the City's Board of Supervisors is considering legislation that would establish green building requirements for most residential and commercial buildings, using the LEED and GreenPoint Rated systems. See http://www.ci.sf.ca.us/site/bdsupvrs_page.asp?id=73398.

CITATION

San Francisco Planning Department, Director's Bulletin No. 2006-02

San Francisco Department of Building Inspection Admin. Bulletin AB 004

DATE

September/October 2006

IMPLEMENTING AGENCIES

San Francisco Planning Dept.
San Francisco Dept. of Building Inspection
San Francisco Dept. of the Environment

TYPES OF BUILDINGS

Commercial, Residential

GREEN BUILDING CRITERIA

Framework. The San Francisco policies incorporate LEED as the green building criteria, without modification, including the LEED indoor environmental criteria.

KEY ELEMENTS OF THE INCENTIVE

The policies issued by the Departments of Planning and

Building Inspections include similar requirements and provide for expedited review for projects that will be certified by the USGBC at the LEED gold level or higher. See [http://www.sfgov.org/site/uploadedfiles/planning/projects_reports/db2006_02priorityprocessing\(1\).pdf](http://www.sfgov.org/site/uploadedfiles/planning/projects_reports/db2006_02priorityprocessing(1).pdf) (Planning). See also

<http://www.sfgov.org/site/uploadedfiles/dbi/downloads/AB-004.pdf> (DBI).

Criteria. Any building project that obtains LEED gold-level certification or higher is eligible for expedited permit processing. Projects may also use a different green building rating system to achieve a comparable result, if approved by the city.

Expedited Process: Department of Planning. According to planning officials, the environmental review process is the major factor affecting the timing of any major project. Officials note that it takes an average of 6-9 months for an environmental planner to be assigned to a project after an application is received by the Planning Department. The Department's expedited review policy establishes a target timeline of *two weeks* between submission of an application and its assignment to and receipt by a Planner. Dir. Bull. 2006-02 at p. 4. The policy also sets a target of two weeks for initial review -- the elapsed time between assignment and the planner's first review of the application for project scope and application completeness.

According to the policy, applications for expedited processing will be processed in the order they are received, as quickly as possible, based on staff availability. The policy states:

“if the volume of qualified applications approved for priority processing and the level of the Department’s staffing preclude meeting the required time limits for assignment and/or review, then the Applicant will be informed that the expedited review program has reached its capacity, and will have the option to apply for review under normal timelines or to have the application placed on a priority review waiting list, until staff becomes available for assignment to a priority application.”

Dir. Bull. 2006-02 at p. 4.

According to officials, the agency accomplishes priority processing by moving qualified projects to the front of the line for assignment to a planner. Each of the agency’s environmental planners (24 positions when fully staffed) would have no more than one priority processing project at a time. Thus, the number of priority review projects that can be accepted at any given time is limited by the availability of planners. If the agency is at capacity, then approved priority projects would be in a queue waiting for staff to become available.

Because the expedited processing is a benefit to projects that require extensive environmental review, the Planning Department has received applications for priority processing mainly from medium to large projects, such as multi-family buildings and office buildings. Thus far the agency has accepted eight projects for priority processing, and another four are in the queue awaiting availability of an environmental planner.

Expedited Process: Department of Building Inspection. Any project that has been approved for expedited review at the Planning Department is also eligible for expedited plan review at DBI. The building department expedites plan review by putting eligible projects at the top of the waiting list for assignment to a plan reviewer. According to officials, overall assignment and review time is reduced somewhat for priority projects. Once assigned, the length of time for review depends largely on how efficiently the project proponent provides DBI with the necessary information.

Projects may also be eligible for DBI priority processing even if they have not gone through priority review at the Planning Department. For

example, less complex projects that do not require extensive planning review might be accepted for expedited review when they apply to DBI for a building permit. Agency officials note, however, that plan review for most projects of this type is carried out fairly quickly by DBI. Thus the incentive (time saved) is not significant, especially in light of the added time required of the applicant to develop and fulfill the requirements of the priority review agreement entered into with the agency (see below). According to officials, DBI has had only one or two projects expedited review projects that had not also gone through expedited review at the Planning Department.

DOCUMENTING AND VERIFYING COMPLIANCE

Documentation. According to both policies, applicants for expedited processing must submit a one-page form to the respective agencies, titled Documentation of Findings for Priority Permit Processing, which includes brief information about the project. The application must also be accompanied by an agreement, in a form prepared and executed by the Department of the Environment, which outlines the review process and the consequences of failure to meet the green building criteria. Along with the agreement, the applicant must submit a LEED checklist, specifying the green building measures that the project will include to obtain a gold rating. Dir. Bull. 2006-02 at p. 3; Admin.Bull. AB-004 at p. 4.

Once the application is approved, the obligations contained in the agreement are memorialized as Conditions of Approval (Planning) and as Conditions of Permit Approval (DBI), and are recorded as Notices of Special Restrictions with the County Recorder’s Office. The conditions must include the requirement that the project’s site permit application or other applications be accompanied by a LEED Design Phase Certification from the USGBC, and that final LEED certification be obtained with a gold rating within six months of issuance of the first Certificate of Occupancy or Certificate of Final Completion (or, if such certificates are not issued, the permit sign-off signifying completion). Dir. Bull. 2006-02 at pp. 3-4; Admin. Bull. AB-004 at p.4. According to officials, the city may extend the time for providing proof of LEED certification if the

project experiences delays in the issuance of its LEED certification.

Review. At the outset of the application process for priority processing, the project sponsor is required to meet with the San Francisco Green Team to determine eligibility. The Green Team includes representatives of the Departments of Planning, Building Inspection and Environment. Dir. Bull. 2006-02 at pp. 3; Admin. Bull. AB-004 at p.4. According to officials, once an application is received, a meeting is set up with the project sponsor to review the LEED checklist and architectural drawings, to make sure that the LEED credits claimed on the checklist are reflected in the project's application. If a project is approved, it is eligible for priority processing through both the Department of Planning and DBI. However the applicant must submit a separate written application form to DBI once it has completed the planning review stage.

Permit applications that are approved for priority processing are to be so designated in the permit tracking systems of the DBI and the Department of Planning. Dir. Bull. 2006-02 at pp. 3; Admin. Bull. AB-004 at p.4. The DBI policy authorizes the agency's director to approve alternate documentation and compliance programs to confirm that all required work is properly completed. Admin. Bull. AB-004 at p. 5.

Department of Planning. According to planning officials, the agency is continuing to develop the process for review of green building documentation as a project proceeds through the approvals process. When the priority processing program was initiated, it was expected that the Department of the Environment would assist in reviewing projects following their acceptance into the program – for example, by reviewing the required proof of LEED design phase certification. However, staff vacancies in the Department of Environment have delayed the agency's participation.

Department of Building Inspection. According to officials, building department plan reviewers stay in touch with project consultants regarding the green building measures for projects receiving

expedited review. DBI inspectors do not address green building features apart from the regular inspections conducted as part of the project. The main method of verification is receipt of proof of LEED certification following the issuance of the temporary Certificate of Occupancy. Once this verification is made, the final Certificate is issued.

ENFORCEMENT

None of the projects that have participated in the priority processing program have completed construction. Planning and Building officials indicate that in the event of non-compliance, a hearing would be held to determine reasonable mitigation alternatives. For example, if a project received priority processing at the planning stage but then failed to be certified at the LEED gold level, the Planning Department might require the project to go back before the Planning Commission. The agency could request that the Commission establish mitigation measures for the project in order to offset the green building features that were not included in the project. If the project failed to achieve the energy conservation measures it had agreed to initially, the city might, for example, require the project owner to purchase hybrid vehicles for the city's fleet, or undertake a tree planting project.

OTHER IMPLEMENTATION ACTIVITIES

Staffing. Although there were no new staff or other resources were provided exclusively for implementation of the policies at either agency, a new position was created in the Department of Planning – a Senior Planner in the Director's office. This position is responsible for improving the quality of project design generally, including addressing green building issues. The Senior Planner provides general oversight and assistance in managing the priority permitting program.

As noted above, the city also anticipates that the Department of Environment will assist the Department of Planning and the DBI in reviewing green building projects.

Training. According to officials, 50 DBI inspectors have received LEED training.

SANTA CRUZ, CALIFORNIA

Pop. 54,593

OVERVIEW OF POLICY

The city of Santa Cruz adopted an ordinance revising its zoning code to create green building requirements and incentives for residential and commercial new construction, additions and certain remodels. Projects are required to submit a green building checklist developed by the city and to achieve a minimum number of points by selecting green building measures from the checklist. (See Policy Summary in Appendix A.) The ordinance also establishes priority processing for projects that exceed the minimum required point levels. The ordinance was based on a proposal developed over a three-year period by a citizens' Green Building Working Group.

CITATION

Santa Cruz Ordinance 2005-29; Santa Cruz Municipal Code, Chapter 24.15

DATE

January 2006

IMPLEMENTING AGENCIES

Department of Planning and Community Development

TYPES OF BUILDINGS

Commercial, Residential

SIZE OF BUILDINGS

Commercial: 1,000 square feet or more
Residential: 350 square feet or more

GREEN BUILDING CRITERIA

The city conducted a fiscal analysis and concluded that the program would require additional staff time to handle increased plan check and inspection requirements. Because Santa Cruz was facing difficult economic circumstances at the time the green building program was developed, the city rejected the option of hiring new staff and sought to minimize the burden on existing staff for overseeing compliance with the new requirements. See City of Santa Cruz Planning Commission Agenda Report (8/18/05) at p. 2. The city established a one-year phase-in of its green building requirements and created a low minimum point threshold, thereby making it easier for projects to comply and for the city to verify compliance.

Framework. Santa Cruz developed two separate checklists that use a flexible, point-based system for selecting green building features. The commercial checklist is based on the LEED-NC version 2.1 checklist including the LEED indoor environmental criteria. The Santa Cruz commercial checklist, however, does not establish any prerequisites and offers points for most of the LEED prerequisite items. The city requires that projects earn only seven points from the checklist (compared to 26 points required by the USGBC for the minimum level of LEED certification.) See Santa Cruz Green Points Checklist for Non-residential Buildings, at www.ci.santa-cruz.ca.us/pl/gbwg/AppendixC-Non-ResidentialCheckList.pdf.

Santa Cruz' residential checklist is consists of a variety of optional green building measures divided into several categories, totaling 460 points. Projects can select measures from any category. The number of points required increases with every 100 square foot increase in house size. A 2,500 square foot house would require 43 points, while a 3,500 square foot house would have to achieve 58 points. See Santa Cruz Green Points Checklist for Residential Buildings, at: www.ci.santa-cruz.ca.us/pl/gbwg/AppendixB-NewHomeGreenPointsChecklist.pdf.

Indoor Air Quality. The checklist includes a variety of indoor air quality measures relating to: Combustion safety (venting range hoods, garage exhaust fans, eliminating wood-burning fire-

places, use of sealed-combustion appliances); ventilation (installing ductwork, whole-house fans, HEPA filters, attic ventilation); and low-emitting paints, finishes and flooring and formaldehyde-free engineered wood products.

KEY ELEMENTS OF THE INCENTIVE

Criteria. To qualify for priority processing, projects must earn a higher number of points from the city's commercial or residential green building checklist than is required of other covered projects. For example, the minimum threshold for all covered commercial project is 7 points from the LEED-based checklist; if the project achieves 33 points, however, it qualifies for priority permit processing. The minimum point threshold for residential projects depends on the size of the building. For example, a 2,500 square foot house would need about 43 points from the city's residential checklist; if it achieves 89 points, it would qualify for priority processing.

Incentive. The city places priority projects at the front of the line for plan review and also facilitates review by other city agencies. The city does not establish a fixed turn-around time for priority projects, but officials estimate that the projects are processed about 10-25% faster than non-priority projects.

DOCUMENTING AND VERIFYING COMPLIANCE

Building Permit Application. Under the ordinance, covered projects must submit the appropriate green building checklist along with the building permit application. The plan set must show clearly the green building measures to be incorporated into the project. §24.15.060. A separate table must be included on either the title sheet or the index referencing specific plan pages and showing how projects will comply with the green building criteria. At this intake stage, if a project demonstrates that it will achieve the number of points required to qualify for priority processing, it is flagged and placed at the front of the line for review.

Green building documentation is routed to the deputy building official, who coordinates the city's green building oversight process and re-

views all new projects to verify that they meet the green building thresholds. If this review confirms that the project meets the priority processing criteria, the deputy building officials helps facilitate review by other city agencies involved in the plan check process. If the project becomes delayed in another office, the inspector will try to help resolve the delay. Priority projects also move to the top of the list for the final step of coordinating the paperwork needed to finalize the permit.

Inspections. According to officials, if any of the green building measures require special verification through the building inspection process, the plans are stamped as such during the plan review. Building inspectors then ensure that stamped items are documented during the inspection process. This includes items that might not ordinarily be covered in the inspection process. For example, inspectors might ask to see paint can labels to verify the use of low-VOC paints, or they may ask to see load tickets from supply yards to verify the use of fly ash in concrete. Where such documentation is unavailable, inspectors might request an affidavit from the project owner, builder or designer.

ENFORCEMENT

For projects that participate in the incentive program, the city meets with the project team following the final inspection to do an audit of the green building measures included in the projects. At that time, if items that were included in the plans are not documented, the city may require substitution of other green building measures.

OTHER IMPLEMENTATION ACTIVITIES

Fees. The green building ordinance establishes a fee for all permits issued by the city in an amount "equal to .0025 times the overall valuation of the project." §24.15.080. Sub-trade permits are exempted, as are permits associated with a master permit. Fees are deposited into a newly-created revolving Green Building Education Fund, which is maintained by the city's finance department. The fund is used for program management, including salaries, and public education.

Incentives. As noted above, Santa Cruz provides a green building award – which includes a plaque and certificate that may be displayed in the building -- to projects that achieve the highest level of points under the checklists. Officials note that the green building award and its marketing benefits have helped provide a stronger incentive for residential builders than priority processing alone, as the award and its related promotional benefits are extremely valuable to builders.

Staffing. The city upgraded a senior building inspector position to deputy building inspector to handle the green building oversight responsibilities. According to officials, it was expected that the deputy building officials would devote about 15% of his time to reviewing green building documentation. Due to the pace of new construction, however, this review has required more time. An intern provided additional staffing, and the agency recently hired an assistant to help with green building review responsibilities.

Education/Training. Outreach to the building community has been an emphasis of the Santa Cruz program. According to officials, in 2007, the city participated in 28 meetings, trainings or presentations about the green building program. These events were held for other municipalities, building professionals, local groups and the public at large.

EVALUATION

According to officials, of the nearly 200 residential permit applications that have been processed, 30 have qualified for expedited plan check, and 16 of these have also qualified for the city's green building award, though some of these projects are still under review. According to officials, the incentive program has not attracted private commercial projects, perhaps because the city's new commercial buildings have been fairly small in size.

SANTA MONICA, CALIFORNIA
Pop. 88, 244

OVERVIEW OF POLICY

Santa Monica has had a green building program for many years. The city has adopted requirements and financial incentives for private commercial and multi-family residential projects in areas such as energy/resource conservation, urban runoff mitigation, and construction waste diversion. In 2005, the city enacted a green building ordinance that provides expedited processing for projects that register with the USGBC for LEED certification.

CITATION

Santa Monica Municipal Code 8.108.050

DATE

August 2005

IMPLEMENTING AGENCIES

Planning and Community Development Dept.
(Building and Safety Division)
Environment and Public Works Management
Dept. (Environment Program)

TYPES OF BUILDINGS

Commercial, Residential

GREEN BUILDING CRITERIA

Framework. The city's incentive program incorporates the LEED framework without modification, including the LEED indoor environment criteria.

In the late 1990s, Santa Monica revised its municipal code to incorporate green building guidelines. See www.smgreen.org/pdf/greenguidelines.pdf. The guidelines include both mandatory and recommended practices for certain residential and commercial development. The mandatory elements are notable for addressing a variety of environmental issues, though they do not address indoor environmental issues directly and thus are not discussed in detail in this report. See <http://www.smgreen.org/requirements/projectrequirements.html>. In 2008, the city is considering further code revisions, including a requirement that projects select from various types of environmentally preferable materials, such as low-emitting paints or carpets.

KEY ELEMENTS OF THE INCENTIVE

Criteria. New construction and rehabilitation projects that register with the USGBC for LEED certification receive priority processing by all city departments. For existing buildings to qualify, the construction must exceed 50% of the building's replacement cost. Projects may register with LEED-Homes, LEED-New Construction, or LEED-Core and Shell. §8.108.050(a). City officials have estimated that most projects built to code in Santa Monica will already have earned 18 of the 26 points necessary for LEED certification.

Incentive. The policy provides for priority plan review, but does not set fixed turn-around times. Officials note that typical turn-around times for non-expedited projects are 6-9 weeks (commercial) and 3-4 weeks (small residential). Under the expedited review program, the city generally provides a turnaround time of 3-4 weeks, or about half the time it takes for a typical commercial project. The expedited time frame would thus provide a benefit for commercial projects, but not for most residential projects.

The city accomplishes the expedited plan review by placing qualified projects at the top of the list for review, ahead of non-expedited projects. The incentive is mainly for plan checks, but officials note that the program is flexible enough that it could expedite review processes in other city departments.

Other Incentives. Santa Monica also has a green building grants program, administered by the city's environment program. New construction or major remodeling of commercial, affordable

housing, mixed-use, and multi-family residential properties are eligible for a grant if they obtain LEED certification. The amount of the green building grant varies depending on the level of LEED certification obtained: \$20,000 (certified); \$25,000 (silver); \$30,000 (gold); and \$35,000 (platinum).

When the grants program was established, a specific amount of money was set aside to fund 10 grants. Only three projects have received grants so far, and funding is still available for additional projects. Grants must be refunded if the building permit expires or if the LEED certification is not issued within six months of a Certificate of Occupancy. Partial refunds to the city are required if the building is not certified at the level specified in the initial application. The city has developed written guidelines for the grants program. See www.greenbuildings.santamonica.org/mainpages/Details%20-%20LEED%20Grants.pdf.

DOCUMENTING AND VERIFYING COMPLIANCE

Documentation. All applicants for priority plan check processing must submit a LEED registration number and LEED checklist to the City, indicating all of the green building credits they intend to pursue. Applicants must also clearly specify the materials, systems and strategies they will use to achieve the credits in the plans submitted to the City for plan check approval. §8.108.050(b)

When the Building Division receives an application for expedited review, it forwards the information to the Green Building Manager (within the city's Environment Program), who reviews the application to determine if it meets the criteria. Following approval, the application is placed in "expedite" status for plan check within the Building Division. See <http://www.smgov.net/planning/buildingsafety/guides.htm#LEED>.

The agencies generally do not conduct further review or verification of the project's green building features. The program does not formally require projects to submit proof of LEED

certification, but officials note that this could be necessary if there is a significant increase in participation in the program.

ENFORCEMENT

The ordinance authorizes the City Council to establish a fine to be imposed on projects that fail to achieve LEED certification for any project that received priority plan check processing pursuant to the ordinance. §8.108.050(c). The city has not established a fine, and officials note that compliance has not been a significant issue thus far.

OTHER IMPLEMENTATION ACTIVITIES

Inter-agency Coordination. Two city offices, within different agencies, work together to administer the expedited review program. The Building Division is responsible for overseeing the priority plan check, while the Environment Program determines whether a project is qualified to participate. The Environment Program also manages the city's broader policy and programmatic activities to promote green building.

Staffing. No additional staff resources were provided to assist in carrying out the expedited review program. Officials note that the program is reluctant to create additional work for the building agency without added staff resources, and this limitation on staff resources could be an obstacle to effective implementation if participation increases significantly. The city has not had a very high level of participation in the program thus far, and therefore has not had to turn away projects due to staff limitations.

EVALUATION

Officials note that nine projects have participated in the priority processing incentive program, including one recent project that is pursuing LEED-Homes certification.

The program did not attract high levels of participation in the first two years, though this is beginning to change. Officials expect to continue providing outreach to the building community and others to increase understanding of green building and of the incentive program.

SARASOTA COUNTY, FLORIDA

Pop. 249,601 (unincorporated)

OVERVIEW OF POLICY

Sarasota County has adopted two Resolutions on green building. The 2005 ordinance established a green building program, including two private-sector incentives -- expedited processing of building permits and permit fee reduction. The Resolution incorporates the LEED criteria as well as criteria developed by the Florida Green Building Coalition. In 2006, building on the early success of the expedited permit program, the County Commissioners adopted a second resolution expanding the incentive program to other planning review processes and establishing more detailed guidelines.

CITATION

Sarasota County Board of Commissioners Resolution No. 2006-174

Sarasota County Board of Commissioners Resolution No. 2005-048

DATE

March 2005

IMPLEMENTING AGENCIES

Sarasota County Planning and Dev't Services

TYPES OF BUILDINGS

Commercial, Residential

GEOGRAPHIC SCOPE

Unincorporated Sarasota County

GREEN BUILDING CRITERIA

Framework. Sarasota County incorporates the LEED rating system, without modification, as well as the criteria of the Florida Green Building Coalition.

The FGBC's rating systems for homes, large developments, high-rises and commercial buildings are flexible, point-based systems that set forth green building measures organized by category. For each category, there is a minimum and a maximum number of points. However, projects may earn fewer than the minimum number of points if they make up the deficiency in another category. Project owners contract with third-party "certifying agents" designated by the FGBC, to verify compliance with the criteria. See www.floridagreenbuilding.org.

Indoor Air Quality. The FGBC rating systems include a "Health" category, which contains indoor air quality-related measures. The checklist for

homes, for example, includes numerous measures in the areas of combustion safety, moisture control, ventilation, source control, cleanability, and universal design, requiring a minimum point total of 15 and a maximum point total of 35 for this section.

KEY ELEMENTS OF THE INCENTIVE

Criteria. To qualify for expedited processing, commercial and residential projects must be certified through either the LEED rating system, or through the Florida Green Building Coalition, a non-profit organization that provides third-party certification of buildings based on its own green building rating systems for homes, large developments, high-rise building and commercial buildings. According to officials, all residential projects participating in the incentive program thus far have used the FGBC system. Commercial projects, whose developers are often from outside Florida, have used the LEED system.

Incentive. The 2006 Resolution authorizes expedited processing times not only for building permits, but also for rezones or special exemption petitions, as well as for site and development plans. The Resolution specifies the processing times for each process: (1) rezone or special exemption petitions for a "green development" -- 6 months; (2) site and development plans for a proposed "green development" -- 10 working days; (3) building permit applications -- 3 working days (residential) or 5 working days (commercial).

According to officials, the expedited processing times are about half as long as the time it takes for a non-expedited project. Projects approved for expedited review go to the front of the line and are quickly assigned to a reviewer.

As part of the expedited review program, the county also provides priority inspections for participating programs. This allows projects to have highest priority for scheduling inspections and to request specific inspections times.

Other Incentives. The 2005 Resolution provided for permit fee reductions for green building projects, along with the expedite review incentive. Projects would receive a reduction in the fee of 50%, up to \$1,000, and no single person or entity could receive more than \$5,000 in fee reductions. The county put aside \$50,000 to pay for these fee reductions. Effective December 2007, the county discontinued the fee reduction program, “in part because of staff layoffs and the economic conditions of the building industry.” See <https://building.scgov.net/OSG/Sarasota/Green%20Building/GreenBuilding.htm>

DOCUMENTING AND VERIFYING COMPLIANCE

The 2006 Resolution includes certain documentation requirements for expedited processing. Residential development petitions for rezoning or special exceptions must include the documentation required by the Florida Green Building Coalition. Applications for building permits must be accompanied by the appropriate checklist from the LEED system or the FGBC. §§1-3.

Pre-permitting. According to officials, large residential and commercial projects that undergo rezone or special exception review submit either the LEED checklist or the FGBC checklist at that time. The checklist is forwarded to the Building Official and his staff, who review the checklist to ensure that the project will meet the minimum green building criteria. Once approved, the case is marked as expedited for subsequent reviews.

Building Permit. Once a project applies for a building permit, whether or not it has undergone rezone or special exception review, the project must also submit the LEED or FGBC checklist with the building permit application. According to officials, plans examiners review the checklists and the plans to ensure that projects are still on track for meeting the green building requirements. For LEED projects, the documentation is reviewed by one of the two plans examiners on staff who are LEED Accredited Professionals.

Post-occupancy. Projects are required to submit proof of FGBC or LEED certification after issuance of a Certificate of Occupancy. Officials note that FGBC certification is usually provided within one-two months, while LEED certification typically takes longer.

ENFORCEMENT

The 2006 Resolution states that those who fail to meet the green building commitments made in exchange for expedited processing “may be deemed ineligible for any future expedited reviews” as determined by city officials. §7. According to officials, this is a significant deterrent and the county has not had problems with compliance thus far.

The Resolution also requires that the plat include language about recorded deed restrictions for green building or green development to help ensure that green building measures are not reversed after homes are sold. §10.

OTHER IMPLEMENTATION ACTIVITIES

Inter-agency Coordination. Each of the three processes subject to expediting is located within a different office in the county’s Planning and Development Services agency. The Inspection Services office carries out building permitting and inspections, the Land Development Review office reviews site and development plans, and the Planning Services office reviews rezone and special exception petitions. The Inspection Services office, which has the lead role in the green building program, began implementing expedited permitting in 2005 for building permits and then recommended that the county expand the incentive to earlier planning processes, in light of the large number of new subdivision projects that were anticipated in the coming years.

Staffing. The Building Official within the Inspection Services office is the point person for green building activities in the county. He provides technical assistance and oversight for the expedited permitting program.

Although no new staff were added to implement the incentive program, the county’s Planning and Development Services agency revised its compensation structure to encourage county staff to strengthen their green building qualifications.

The existing compensation structure allowed for salary increases for specified additional qualifications, and the agency has added increased salary amounts for LEED-APs (\$1,000 per year) as well as for FGBC “certifying agents” (\$500 per year). According to officials, there are currently two building plan review staff and one or two land development staff who are LEED-AP. All inspection and plan review staff have been designated “certifying agents” under the FGBC program (though staff do not actually certify projects).

Training. The Building Official has provided training to planning staff throughout the agency in order to help them understand the LEED and FGBC rating systems. Officials note that this training, along with the county’s incentive for third-party credentials, is essential to ensuring that staff can discuss green building issues with project teams and process green building reviews effectively.

Outreach. According to officials, a key to the success of the program has been the considerable amount of public outreach provided to building associations and companies to discuss the benefits of green building generally and to explain the county’s incentive program. Another important outreach component was including building professionals in the discussions about designing the program.

EVALUATION

Officials estimate that approximately 1,500 homes have committed to building green since 2005, though not all have entered the county review process yet. Between 25-50% of the residential properties undergoing review participate in the green building incentive program. Several high-profile commercial developments also are participating, representing about 700,000 square feet of commercial space.

SCOTTSDALE, ARIZONA

Pop. 222,275

OVERVIEW OF POLICY

The City of Scottsdale first established a green building program in 1998 and has developed a set of voluntary green building guidelines upon which the program is based. The expedited review incentive began as an informal effort to encourage green building, but has become more formalized administratively in recent years. The city provides expedited permitting to residential builders who participate in the program. The city also provides educational and promotional incentives to private residential and commercial builders and developers to encourage them to participate in the green building program and to meet the standards set out in the guidelines.

CITATION

City of Scottsdale Green Building Program
Scottsdale Building Code – Scottsdale Rev. Code §§31-32 (102.4.1,106.1.1.2)

DATE

1998; revised 2001, 2006

IMPLEMENTING AGENCIES

City of Scottsdale Planning and Development Services Department

TYPES OF BUILDINGS

Residential (single-family and small multi-family)

According to officials, the incentive is not offered to commercial projects due to the greater complexity of and increased plan review time for most commercial projects, compared to small residential projects.

GREEN BUILDING CRITERIA

Framework. The city of Scottsdale, which has one of the oldest green building programs in the U.S., has developed its own green building criteria. There are three separate sets of criteria and checklists: One set each for single-family residential, multi-family dwellings, and commercial projects. Each set of criteria is structured as a flexible, point-based system, containing numerous mandatory and optional green building measures organized by categories. The criteria were updated in 2001 and then again in 2006 to reflect changes in the city's energy code, among other things.

The Green Home checklist applies to single-family homes as well as multiple single-family homes (*e.g.*, townhouses) up to three stories. The checklist includes 14 categories of green building

features. Within each category there are mandatory and optional measures. Residential projects must comply with the minimum criteria and select optional measures to achieve either a basic level of certification (50-99 points) or an advanced level (100 points or more). These minimum point totals were nearly doubled in 2006 from previous levels.

The multi-family residential checklist, which applies to apartment buildings and condominiums with shared egress, is structured very much like the green home checklist and contains the same minimum requirements for certification, while recognizing inherent resource efficiencies of multi-family projects.

Indoor Air Quality. Although the program emphasizes energy and water conservation, indoor environmental quality is also a stated goal of the program. There are several mandatory IAQ elements in the two residential checklists, including: use of CO alarms; mechanical kitchen/bathroom exhaust fan systems; minimum MERV 8 rating for air filters; use of air-sealed mechanical rooms; restrictions on air handling equipment in garages; protection of ducts during construction; sizing/layout of ductwork; and VOC limits for interior paints, coatings, finishes, adhesives.

In addition, the checklists include numerous optional IAQ measures, in areas including low-emitting materials, ventilation, combustion pollutants, radon, and pest management.

KEY ELEMENTS OF THE INCENTIVE

The city has developed written, voluntary green building standards to guide the program. The city also amended its building code to affirm that these standards apply to projects as long as they

are enrolled in the city's Green Building Program. Information about the program can be found on the city web site. See <http://www.scottsdaleaz.gov/greenbuilding/>.

Criteria. Residential projects that enter the city's green building program and commit to complying with the city's minimum green building standards are eligible to receive priority plan review. The city is offering the expedited permitting to single-family homes and to small multi-unit developments such as townhouses, which do not have common areas or other features that involve a more complicated code enforcement process.

Expedited Review Incentive. The city has established a turn-around time of 3 weeks for expedited review. The regular review time is one month. According to officials, when the program was first developed and carried out on a smaller scale, the county's regular review time was longer. About two years ago, the city undertook to reduce delays in its regular permit processing time, so that the regular time framework would not exceed one month. This has reduced the differential between expedited and regular projects.

Other Incentives. In addition to providing expedited permitting, the city offers a number of public-recognition incentives to encourage participation in the green building program. These include job site signs, a directory of participating designers and builders, green building certification, and local media coverage for projects. The program offers educational programs on green building topics, and requires participating builders to attend at least one green building educational event each year they participate in the program. The program has an independent revenue account for green building outreach activities, with funds raised at an annual Green Building Expo.

DOCUMENTING AND VERIFYING COMPLIANCE

According to officials, the green building incentive program is successful in part because it is carried out within the permitting and inspection agency, and is integrated into the regular building review process. The city has developed written enrollment procedures for the program. See City of Scottsdale Green Building Program, Enrollment Procedures, available at: <http://www.scottsdaleaz.gov/greenbuilding/>.

Documentation and Verification. Scottsdale has amended its building code to state that the plans for all projects enrolled in the city's Green Building Program must include applicable provisions of the Green Building Program Checklist.

To participate in the green building program and receive expedited permitting, a project must submit an Enrollment Form (basic project information); a Green Building Rating Checklist (indicating measures to be incorporated in the project), and a completed CAD checklist on one sheet of construction drawings. The applicant also meets with agency staff to discuss the green building measures. Once a project is approved to participate in the program, the selected green building measures become part of the project, and the builder receives a Green Building Submittal Approval form. When the builder submits the project plans to the city for review, the form qualifies the project for expedited review and the project is tracked throughout the permitting process.

Inspections. In 2006 the city changed its inspection process for verifying compliance with the green building measures. One change involved designating certain green building measures as "self certified" and others as inspected by the city. The green building program consulted with city building officials to determine which items would be most suited to inspection in the field.

Another change in the process is that applicants no longer request separate, special inspections for green building measures. Rather, the city has integrated green building measures into the regular building inspection process. As part of this new process, the plan reviewer fills out an inspection card that indicates which green building items require inspection by the city. The card is posted on the job site. Thus, when a builder calls for an inspection at various stages of the project, the inspector will know which green building items are to be inspected at that stage.

The plan reviewer also fills out a form indicating which green building measures selected by the applicant must be self-certified. Builders must sign a Certificate of Compliance upon final inspection for those items not inspected by the city. The Certificate of Compliance becomes a permanent city record along with the Certificate of Occupancy.

ENFORCEMENT

If construction does not comply with the green building criteria, permits are placed on hold and work on the project may not proceed until the city approves the requested changes. The program gives building inspectors some flexibility in approving substitution of alternative measures. If builders wish to withdraw from the program or revise their plans, they must submit the plans to the building department for plan review. According to officials, an hourly plan review fee would be charged and the review would take 1-2 weeks.

OTHER IMPLEMENTATION ACTIVITIES

Staffing. The program is carried out within the city's building and development agency. Over the course of the program there have been different approaches to staffing the expedited review and inspection process. While the program used to rely on specialized green building staff to conduct the necessary oversight, these functions are now more institutionalized within the agency.

In the past, the green building program manager had primary responsibility for reviewing green building documentation. Within the last two years, a new Senior Residential Plan Reviewer position was created, with responsibility for reviewing the documentation for green building projects, and a Residential Plan Reviewer was also trained to serve as a back up. The city's green building program manager continues to provide technical assistance on individual projects, as well as overall guidance for and management of the city's various green building activities, including the expedited permitting program.

When the expedited review program was first initiated, the building department funded a separate green building inspector position. This position was later phased out, as green building inspections have become more streamlined and integrated with the regular inspection process.

Officials note that the program also benefits from high-level management support within the agency. An important factor in achieving greater efficiency and effectiveness of the program over the past few years has been the arrival of a new chief development officer and the creation of a

new management position to oversee processing of all building permits.

Advisory Committee. The Green Building Advisory Committee, a standing committee of the Environmental Quality Advisory Board, consists of 14 individuals. They help guide the program's green building checklist updates, implementation processes, and educational and outreach activities.

EVALUATION

Program Reports. The city of Scottsdale has produced a number of annual reports reviewing the green building program. These reports covered the numbers and types of projects that participated in the program.

According to the city, the program issued 463 green building permits in 2005, to over 90 participating builders. In 2005, 33% of all single-family residential building permits adhered to the city's green building program standards. Compared to 2004, this reflects a 21% increase in green building permits and a 189% increase in green housing starts. From 1998 through July 2006, the city issued 1150 green building permits. According to the city, over the course of 2005, the program's success rate for providing a 3-week turn-around time for plan review ranged from 88.6% and 99.7%. Program officials estimate the current rate as near 100%.

There has been substantial participation in the incentive program among residential builders. The certainty of the 3-week processing time (even though the regular time framework is only one month) is a benefit to builders. At some point – *e.g.*, when the program achieves participation of 40-50% of the new residential projects – it may need to be phased out because the city will not be able to handle such a high volume without disrupting the regular permitting process.

Evaluation of Environmental Impacts. The program has estimated the energy-related impacts of homes participating in the program, based on assumptions about the average home size and the amount by which the average green home exceeds energy code requirements. See City of Scottsdale Green Building Program, Energy Performance and Green House Gases (Sept. 2006).

WASHINGTON, D.C.

Pop. 581,530

OVERVIEW OF POLICY

The District's green building law phases in requirements for private commercial buildings 50,000 square feet or larger, establishing that by 2012, all such projects must be verified as meeting the LEED certified level. (See Policy Summary in Appendix A.) The law also provides for an incentive program, including a Green Building Expedited Construction Documents Review Program. The District has not yet begun to implement the expedited permitting incentive, but is currently developing the program.

CITATION

Green Building Act, D.C. Bill 16-515

DATE

December 2006

IMPLEMENTING AGENCIES

Department of Consumer and Regulatory Affairs
Department of the Environment

TYPES OF BUILDINGS

Commercial, Residential

GREEN BUILDING CRITERIA

Framework. The law does not specify green building criteria for the expedited permitting program. The law's mandatory provisions incorporate without modification the LEED criteria for commercial projects. For residential projects participating in the incentive program, the law references LEED-NC, LEED-CS and the Green Communities 2006 standards. The law also authorizes the District to approve use of LEED-Homes.

KEY ELEMENTS OF THE INCENTIVE

Criteria. The law does not specify which projects may apply for expedited permitting. The law states generally that the incentive program is for "applicants for construction permits for private residential and commercial buildings." §7. According to District officials, the city is considering whether or not to limit the program initially to projects that would otherwise be considered "covered projects" under the law – *i.e.*, non-residential projects that meet the minimum size threshold of 50,000 square feet.

The law's mandatory provisions establish the LEED certified-level standard as the minimum threshold for covered projects. The law does not specify the green building criteria that are to be used to qualify projects for the expedited permitting program. However, the incentive program aims to promote "early adoption" of green building practices and also to encourage builders to exceed the law's requirements once those requirements take effect. District officials are considering requiring formal LEED certification in order to participate in the expedited review program.

Incentive. The law establishes a 30-day period for review of construction documents by the Department of Consumer and Regulatory Affairs (DCRA), assuming all necessary information has been provided with the building permit application and all outside agencies have performed their required reviews. If the DCRA requires additional information to process the permit application, the 30-day count is suspended until the applicant supplies the information. §7(a)(4)-(5).

Other Incentives. The law also authorizes the District to establish a grant program for commercial projects that meet the law's green building criteria before they are required to do so, or that exceed the (LEED certified-level) criteria once the law's mandatory provisions take effect. The grant program would also apply to residential projects that incorporate green building measures, even though not required under the law. §7(b). Thus far, the District has not created the grant incentives program. §7.

DOCUMENTING AND VERIFYING COMPLIANCE

The DCRA may issue administrative guidelines to implement the provisions of the law. The law also calls on the Mayor to submit proposed rules for establishing the 30-day review framework in other city agencies that are involved in approving building permits. §7(a)(6). The District has not yet issued regulations.

According to officials, the District is considering a verification process that involves initial agency review of the application by a designated green building coordinator, followed by an inter-agency meeting during which the applicant receives information about what is needed from each agency in order to complete the plan review within 30-days. Under such a process, the agencies involved would then conduct parallel reviews prior to issuance of the building permit.

ENFORCEMENT

Under the law, all commercial applicants for an incentive will be required to post a performance bond equal to “1% of the incentive provided,” in order to ensure compliance with green building requirements. In lieu of a bond, the city may accept an irrevocable letter of credit from an authorized financial institution or evidence of cash deposited in an escrow account. Under the law, a project that fails to meet the minimum green building standard will forfeit its bond. §6.

OTHER IMPLEMENTATION ACTIVITIES

Staffing. The law directs the District to hire specific staff positions within the DCRA to work primarily to expedite green building permit applications – a “green building development ambassador,” a green building construction permit application reviewer, and a green building inspector. §7(a)(2).

Funding. The law requires the District to establish a green building fee by increasing building construction permit fees by \$0.002 per ft² for new construction (and between .065% and .13% of construction value for alterations). §9. These fees and other monies collected under the law are to be deposited in a newly-established Green Building Fund. §8. The Fund is to cover the staff and operating costs of implementing the law, and the law states that the “incentive program shall be funded by monies deposited in the fund . . . subject to the availability of funds.” §7. According to officials, the District has begun to collect these fees and will eventually use the monies to hire staff within the DCRA.

EVALUATION

The city’s Green Building Advisory Council is charged with evaluating “the effectiveness of the District’s green building policies and their impact on the District’s environmental health, including the development of the District’s green building policies to the specific environmental challenges facing the District.” §10. The law also calls on the Council to issue annual reports of its recommendations.

Appendix C

FINANCIAL INCENTIVES POLICY SUMMARIES

Baltimore County, MD
Chatham County, GA
Cincinnati, OH
Arlington County, VA
Seattle, WA

BALTIMORE COUNTY, MARYLAND

Pop. 787,384

OVERVIEW OF POLICY

The Baltimore County Council enacted an ordinance establishing a real property tax credit for green buildings. The tax credit is available to commercial building projects that achieve LEED certification at the silver level or higher. The original policy (Bill 85-06) was revised in 2007 to reduce the amount of the tax credit.

CITATION

Baltimore County Code, Article 11, §11-2-111 (Ad-Valorem Taxes)
County Council of Baltimore County, Bill Nos. 78-07, 85-06

DATE

June 2006; revised December 2007

IMPLEMENTING AGENCIES

Department of Budget and Finance

TYPES OF BUILDINGS

Commercial

The ordinance does not define “commercial” buildings and thus could be interpreted as including multi-family projects that are certified under one of the LEED rating systems noted in the law (see below).

GREEN BUILDING CRITERIA

The Baltimore County tax incentive policy incorporates the LEED rating system, including the indoor environmental criteria.

KEY ELEMENTS OF THE INCENTIVE

Framework. The state of Maryland enacted a law in 2004 which authorized local jurisdictions within the state to establish a local property tax credit for high performance buildings. Maryland Ann. Code Tax-Property Article, §9-242. The state law defines high performance buildings as those meeting at least the LEED silver-level criteria or equivalent, and allows localities to establish other provisions, including amount and duration of the tax credit.

Criteria. The tax credit is available to High Performance Buildings, defined in the ordinance as a

commercial building that achieves LEED certification at the Silver level or higher under LEED-NC, LEED-CS, or LEED-EB. §§11-2-203.1(a)(2),(3).

Incentive. Qualifying projects receive a tax credit against county real property taxes assessed on the building. The amount of the tax credit is a percentage of the total county property tax assessed on the building. The amount and duration of the tax incentives vary depending on the LEED rating system used. §§11-2-203.1(b)-(E).

- For New Construction projects, the tax credit is available for five consecutive years, in the following amounts: Silver (50%), Gold (60%), and Platinum (80%).
- For Core and Shell projects, the tax credit is also available for five consecutive years, in the following amounts: Silver (40%), Gold (50%), and Platinum (70%).
- For Existing Building projects, the tax credit is available for three consecutive years, in the following amounts: Silver (10%), Gold (25%), and Platinum (50%).

Tax credits run with the property, and do not lapse if there is a change in ownership. §11-2-203.1(H). Pursuant to the ordinance, the total amount of the tax credits awarded under the program may not exceed \$5 million, and the program amount is subject to annual review by the county council. §11-2-203.1(I).

According to officials, a key factor in developing the tax incentive was determining the amount of the cost of obtaining LEED certification. Before revising the ordinance in 2007 to adjust the amount of the tax credit, the county met with builders to

discuss their experiences and to aid in this determination. Officials indicate that the changes better reflect the incremental cost of building green and are important given the cap on the total amount of incentives that can be awarded under the program.

DOCUMENTING AND VERIFYING COMPLIANCE

A property owner must apply for the tax credit by the June 1 immediately preceding the first taxable year for which the tax credit is sought. §11-2-203.1(J). Under the ordinance, an owner must submit an application, under oath, to the Director of Budget and Finance on a form approved by the Director. Along with the application, the owner must submit proof that the property meets the ordinance's green building standards. §11-2-203.1(K).

The Department of Budget and Finance has not yet established the process for reviewing and approving applications, but the agency intends to rely on proof of LEED certification and will minimize additional paperwork to the extent possible.

EVALUATION

According to officials, one LEED project that has already been completed is expected to apply for the tax credit. Officials expects to receive a significant number of applications, based on the county's close cooperation with area businesses and their work in promoting the program, as well as a general surge in green building interest that has occurred in recent months.

CHATHAM COUNTY, GEORGIA

Pop. 241,411

OVERVIEW OF POLICY

The state of Georgia has enacted a law governing the local designation of enterprise zones and providing for the reduction of state and local taxes in such designated zones. Georgia Code Ann. §§36-88-1 *et seq.* Chatham County in turn adopted an ordinance creating enterprise zones and providing tax abatements to qualifying businesses. The county later amended the ordinance to add a green building requirement for certain enterprise zone tax incentives. Under the ordinance, qualifying businesses that are located in enterprise zones and that obtain LEED gold level certification are eligible for a reduction in the state and county ad valorem property taxes. According to officials, the purpose of the policy is to stimulate business development along the Savannah River in a clean and energy-efficient manner.

CITATION

The Board of Commissioners of Chatham County – City Ordinance, Section 7-1002

DATE

May 2006

TYPES OF BUILDINGS

Commercial

GEOGRAPHIC SCOPE

Businesses in areas designated as enterprise zones within unincorporated Chatham County, located primarily along the Savannah River.

GREEN BUILDING CRITERIA

Framework. The Chatham County tax incentive program incorporates the LEED rating system without modification, including the LEED indoor environmental criteria.

KEY ELEMENTS OF THE INCENTIVE

Criteria. A “qualifying business” that is certified to meet the LEED gold standard is eligible for a reduction in property taxes. §7-1002(a). A qualifying business is defined as an enterprise that increases employment by five or more new, full-time job equivalents in an unincorporated area designated as an enterprise zone and which provides additional economic stimulus in the zone. §7-1002(c). Qualifying businesses that are not LEED-certified are eligible for other tax incentives, as set out in the ordinance and state law.

An area designated as an enterprise zone must remain in existence for ten years from the first day of

the calendar year immediately following its designation. The Board (Board of Commissioners of Chatham County) may enter into agreements with qualifying enterprises to determine whether tax exceptions or abatements will be modified or terminated once the ten years has passed. §7-1004.

Incentive. Qualifying businesses that obtain LEED gold certification are eligible for a reduction in the state and county ad valorem taxes for a period of ten years, according to the following schedule, which is set forth in both the ordinance and in state law:

- 100% exemption for the first five years
- 80% exemption for the 6th and 7th years
- 60% exemption for the 8th year
- 40% exemption for the 9th year
- 20% exemption for the 10th year

The property tax exemptions within enterprise zones are capped at 10% of the value of the entire property tax digest of the unincorporated area of Chatham County. §7-1002; Georgia Code Ann. §36-88-8.

All qualifying businesses are assigned a coordinator who assists the business in expediting and facilitating applications, permits and inspections. §7-1008(c)(3). Thus, qualifying projects that are also green building projects may also receive expedited permitting. County staff are being trained in LEED to take on this task.

DOCUMENTING AND VERIFYING COMPLIANCE

The process and timeline for submitting and verifying documentation are not yet established. In general, applicants for enterprise zone incentives must file the Chatham County Enterprise Zone Application/Project Information form. The County Manager reviews the forms and makes a determination on whether or not the applicant is a qualifying enterprise and thereby eligible for financial incentives. §7-1007(c)(1). According to officials, LEED certification must be presented to receive and renew the tax abatement.

ENFORCEMENT

The county ordinance provides that any participating business must enter a contract that outlines the incentives being offered, as well as the provisions for revocation and reimbursement if the terms are not met. The participant must certify annually their compliance with the contract. §7-1008(g).

EVALUATION

No projects have utilized the incentive yet. According to officials, the tax incentive has not succeeded in attracting green building projects to enterprise zones largely because businesses are more interested in locating in other parts of the county that do not have the considerable environmental contamination found in the enterprise zones. Officials note that Chatham County is considering expanding the incentive, as well as the enterprise zone, in order to attract companies that will incorporate green building.

Officials also note that certain building code provisions make it more difficult to achieve a gold-level LEED certification. The county is taking steps to address some of these issues – *e.g.*, grey water reuse, engineered stormwater management practices – by revising code provisions.

CINCINNATI, OHIO

Pop. 302,616

OVERVIEW OF POLICY

Cincinnati has designated the entire city as a Community Reinvestment Area (CRA) and has established exemptions from real property taxes for housing and commercial development within the city, pursuant to state law. See Cincinnati City Council Ordinance #119-2007; Ohio Rev. Code §3735.65 *et al.* In 2006 the city enacted an ordinance providing more generous property tax exemptions for residential and commercial new construction and remodeling projects that are LEED certified. In 2007 the city revised the ordinance to define the nature of the incentive in greater detail, and the city later revised the ordinance again to clarify certain provisions. The amount and duration of the tax exemption varies depending on whether the project is residential or commercial, and whether it is a new construction or remodeling project.

CITATION

Cincinnati City Council Ordinance #182-2007 and Ordinance #446-2007

DATE

May 2006; revised 2007

IMPLEMENTING AGENCIES

City of Cincinnati Department of Community Development

TYPES OF BUILDINGS

Commercial, Residential

Commercial properties are defined to include multi-unit residential buildings with four or more units.

GREEN BUILDING CRITERIA

Framework. The Cincinnati tax incentive ordinance incorporates the LEED rating system, without modification, including the LEED indoor environmental criteria.

KEY ELEMENTS OF THE INCENTIVE

Criteria. A property tax exemption is available to new or remodeled commercial and residential properties that are LEED certified. Ord. 182, §§1,2; Ord. 446, §1.

Incentive. Under the ordinance, eligible *new construction projects* are provided a 100% real property tax exemption for the maximum period of 15 years allowable under state law. Ord. 446, §2. This represents an expansion of the exemption for small and multi-family residential projects, which would otherwise only be eligible for an exemption of 10 or 8 years, respectively, if they are not LEED certified.

New commercial construction projects are already eligible for a 15-year exemption whether or not they are LEED certified, and state law does not allow for an expansion of that time period. However, officials note that commercial projects that are LEED certified do receive another incentive; they do not have to demonstrate that they have a financial need for the incentive, whereas non-LEED projects must make that showing.

For *remodeling projects*, the exemption period is 10 years for small residential properties and 12 years for commercial and multi-family properties. Ord. 446, §2. These are the same amounts allowed for non-LEED projects except for multi-family residential projects, which are only allowed an 8-year period under existing law if they are not LEED certified. Again, commercial projects have the additional incentive of not being required to show financial need.

In addition, the ordinance establishes a cap on the amount of the exemption for residential properties of \$500,000 per dwelling unit of market improved value. This per dwelling unit of market improved value limit increases 3% compounded each year. The limit does not apply to properties that meet the LEED “platinum” level criteria. Ord. 182, §2(a)-(c). The city’s CRA ordinance for non-LEED projects provides a cap of \$275,000.

Any commercial projects seeking a tax exemption in the city (whether or not they are LEED projects) must enter into an agreement with the city’s Board of Education to pay the Board 25% of the full amount of the exempt taxes. Thus, the amount of the tax exemption for commercial projects is about

75% of the amount of the taxes that would be due to the city.

Commercial projects also must pay the City an annual fee of one percent of the annual tax exemption. Ord. 182, §2; see also Ordinance No. 119 §3(d).

DOCUMENTING AND VERIFYING COMPLIANCE

Under state law, a completed application for a tax exemption must be submitted prior to start of construction on a project. According to officials, along with the application, a project must submit to the City Department of Community Development proof of registration with the U.S. Green Building Council with the intent to become certified. See also Ord. 182, §2.

Under state law and the city's ordinance, commercial projects applying for a tax exemption must also enter into a written agreement with the city before beginning construction or remodeling.

The agreement specifies the period of exemption and the exemption percentage, and must be approved by ordinance of the city council and signed by the city manager. Ohio Rev. Code §3735.67(A); Ord. 446, §2(c).

The tax exemption is not formally granted until the project submits proof of LEED certification to the Department of Community Development, which then authorizes the exemption.

EVALUATION

Thus far, the incentive program has granted a tax exemption to four single-family homes (constructed by the same builder). The city recently approved another project -- a three-story office building -- and has received at least one other application as of January 2008. The city plans to review the incentive program's effectiveness in the future, but has not established a time framework for doing so.

ARLINGTON COUNTY, VIRGINIA
Pop. 199,776

OVERVIEW OF POLICY

Arlington County has created an incentive program that provides a density bonus for certain projects obtaining formal LEED certification. Arlington County initially implemented a density bonus incentive for green buildings in 2000, however only one project applied for and received the density bonus. In 2003, as part of its new green building program, the county updated and expanded the incentive program. The new incentive lowered the minimum LEED certification level that projects must achieve in order to qualify for the incentive, and also provided a range of bonus densities for different levels of green building certification.

The bonus density incentive is implemented in conjunction with the county's mandatory green building policy, which requires site plan projects to submit a LEED scorecard and to meet the LEED certified criteria, but which does not require formal LEED certification. (See Policy Summary in Appendix A.)

CITATION

Arlington County Green Building Incentive Program

DATE

2004

IMPLEMENTING AGENCIES

Dept. of Environmental Services
Dept. of Community Planning, Housing and Development

TYPES OF BUILDINGS

Commercial, Residential

SIZE OF BUILDINGS

Arlington County's bonus density incentive policy applies only to building that go through the county's site plan process, which involves larger projects seeking to exceed the zoning limits. According to officials, most commercial and large-scale residential development in the county goes through this process.

GREEN BUILDING CRITERIA

Framework. Arlington County's incentive program uses the LEED rating system, including the LEED indoor environmental criteria.

KEY ELEMENTS OF THE INCENTIVE

The bonus density program is not established legislatively, but the county has prepared a detailed summary of the program, which is available on the county web site. See <http://www.arlingtonva.us/> (search "Green Building Incentive").

Criteria. Projects that achieve any level of LEED certification are eligible for bonus density. Achieving LEED certification does not automatically entitle the applicant to the bonus, as certain other factors relating to the site or project may make the bonus inappropriate. According to officials, though, the county has not denied a request for bonus density to date.

Bonus Density Incentive. The available density bonus depends of the level of LEED certification. A density bonus of .15 FAR is available for "certified" level projects, .25 FAR is available for "silver" level projects, while up to .35 FAR is available for "gold" or "platinum" level projects. For example, a 200,000 square-foot, silver-rated building can obtain an extra 10,000 square feet of space.

Other Incentives. Arlington County also provides a fee waiver to site plan projects that achieve LEED certification. (See Policy Summary in Appendix A.)

DOCUMENTING AND VERIFYING COMPLIANCE

A developer requesting a density bonus must submit a LEED scorecard and proof of LEED registration along with the proposed site plan. If the requested bonus is approved, the county includes a formal condition in the site plan requiring the building to incorporate the green building measures. The site plan condition doesn't specify the exact LEED credits that have to be met, but rather specifies a total number of LEED credits. The spe-

cific credits can change through the process, but the total number must be achieved.

In addition to requiring site plan projects to have a LEED Accredited Professional working on the project, the county's own green building program staff undertake several reviews of projects throughout the site plan and permitting processes, to ensure the projects achieve their selected LEED criteria. (See Policy Summary in Appendix A.)

Under the program, the county issues the Master Certificate of Occupancy once the building is LEED-certified. Officials note that a project might receive an occupancy certificate prior to formal LEED certification, but that the county also uses bonding to ensure compliance.

ENFORCEMENT

Performance Bond. Arlington County requires a financial bond to guarantee compliance with the green building requirements of the incentive program. In 2005, the county revised the formula for calculating the bond to more fully capture the market value of bonus density awarded to the project.

The new formula is: "(FAR value per ft²) x (Bonus Density Space)," and the "FAR value per ft²" is calculated annually by the county for the purposes of property assessment. If the project fails to obtain LEED certification or misses four or more points, 100% of the bond is forfeited; achieving LEED certification but missing up to 3 points results in forfeiture of 50% of the bond. See Memorandum from Randy Bartlett, Director/DES to Ron Carlee, County Manager (Mar. 18, 2005).

EVALUATION

A significant percentage of current projects are taking advantage of the financial incentive. As of early 2008, county officials estimated that roughly 10 of the approximately 25 site plan projects being processed were pursuing LEED certification. According to the policy, the incentive program expires after five years and is to be reviewed at that time. In light of the fact that compliance with Arlington County codes will itself earn projects many LEED credits, the county may consider increasing the minimum green building level required to qualify for the incentive.

SEATTLE, WASHINGTON

Pop. 562,106

OVERVIEW OF POLICY

As part of a broad set of zoning changes to promote higher-density, mixed-use development in the downtown area, the city of Seattle has made height or density bonuses available to commercial and residential projects. In order to be granted bonus development, a project must incorporate green building measures. The bonus development is available to projects that commit to earning LEED certification at the silver level or higher.

CITATION

Seattle Municipal Ordinance Number 122054; Seattle Mun. Code, ch. 23.49, subch. I

DATE

May 2006

IMPLEMENTING AGENCIES

Department of Planning and Development

TYPES OF BUILDINGS

Commercial, Residential

GEOGRAPHIC SCOPE

Downtown (central office district and adjoining areas)

GREEN BUILDING CRITERIA

Framework. Seattle's incentive program uses the LEED rating system without modification, including the LEED indoor environment criteria.

KEY ELEMENTS OF THE INCENTIVE

Seattle's land use code sets forth detailed provisions governing floor area bonuses. A project may not receive the first increment of bonus floor area (above the base FAR) unless the project will meet green building criteria. Once the project meets those criteria and receives the first increment of bonus development, the project may gain additional floor area bonuses by meeting other criteria – e.g., affordable housing, child care, and other public amenities. §23.49.011-.013.

Criteria. Projects that will achieve LEED certification at the silver level or higher are eligible for density or height bonuses. §23.49.011(A).

Incentive. Green building projects are eligible for the first increment of bonus floor area. The amount of this increment depends on the zoning district. Pro-

jects in the Downtown Office Core 1 (DOC1) may obtain an initial increment of floor area of 1 FAR, while projects in the DOC2 may obtain 0.75 FAR. Projects in the Downtown Mixed Commercial (DMC) zone may obtain between 0.25 - 0.50 FAR. SMC Chart 23.49.011(A)(2). The land use code also includes a separate bonus density provision for projects that include residential units, in order to encourage downtown residential development. Such projects must include affordable housing and must also meet the LEED silver criteria. The green building requirement tied to this bonus development is to be phased out after five years, at which time the city could decide whether to end or modify the incentive. §23.49.015 (A)(4).

DOCUMENTING AND VERIFYING COMPLIANCE

Pre-permitting. According to the Department of Planning & Development, a developer requesting a development bonus must submit a letter of intent prior to the issuance of a Master Use Permit, indicating its commitment to earn a LEED silver rating or higher. There is no required format for the letter, however the city issues subsequent permits based on this good faith commitment. See www.seattle.gov/dpd/GreenBuilding/OurProgram/PublicPolicyInitiatives/DevelopmentIncentives/default.asp.

Officials note that the city may have an opportunity to discuss green building elements with project teams during the city's early design guidance review, though this is not a formalized process or a requirement for receiving bonus density.

Post-occupancy. The land use code contains a set of procedures for verifying compliance for any project that obtained a development bonus based on a LEED rating. The developer is required to submit

proof of achieving the LEED rating within 90 days of receiving the final Certificate of Occupancy. The required documentation consists of a report prepared by the USGBC or other approved entity analyzing the credits earned in achieving the rating. §23.49.020(B).

ENFORCEMENT

The failure to submit timely verification of achieving the LEED rating (within 90 days, according to the code) is a violation of the code, subject to a penalty of \$500 per day from the date when the report was due until the date the report is submitted. §23.49.020(B)(2).

Whether or not a timely report is submitted, the code also provides a penalty in cases where the developer fails to achieve full compliance with its commitment to earn at least a LEED silver rating. §23.49.020(B)(3). The fewer points achieved by the project, the greater the penalty. The code establishes a formula for calculating the penalty:
$$P (\text{penalty}) = [(LSM-CE)/LSM] \times CV \times 0.0075.^1$$

Any owner of the lot on which the bonus was obtained is jointly and severally liable for any penalty due. Within 90 days of receiving a notice of penalty, a developer may submit a supplemental report demonstrating that sufficient alterations have been made to earn a LEED silver rating. In such cases,

the city may eliminate or re-determine the amount of the penalty. Penalties are deposited in a newly-established Green Building Fund, and are to be used for activities or incentives to encourage sustainable building. §23.49.020(C). If a penalty is assessed and paid, the failure to earn a LEED silver rating will not affect the right to occupy the building. §23.49.020(B)(4).

EVALUATION

According to officials, the city's incentive program has been successful. Most new projects in the downtown areas covered by the policy are pursuing the bonus development incentive – over 20 projects since the policy was established – and thus are or will be pursuing LEED certification. Of these projects, only about 4 have a significant commercial component; most are residential projects.

According to officials, it is important to ensure that the substantive criteria adopted by the policy are effective at achieving the municipality's priority environmental and health goals. Officials expect that Seattle will review progress under the incentive program when the residential green building requirement expires after 5 years, in order to determine whether participating projects have addressed the city's priority goals of energy efficiency and water conservation.

¹ LSM = min. no. of credits to earn a LEED silver rating. CE = no. of credits earned by the project
CV = construction value of the project, as set forth in building permit.

The Environmental Law Institute (ELI) makes law work for people, places, and the planet. For nearly four decades, ELI has played a pivotal role in shaping the fields of environmental law, policy, and management, domestically and abroad. Today, ELI is an internationally recognized independent research and education center

known for solving problems and designing fair, creative, and sustainable approaches to implementation.

The Institute delivers timely, insightful, impartial analysis to opinion makers, including government officials, environmental and business leaders, academics, members of the environmental bar, and journalists. ELI serves as

a clearinghouse and a town hall, providing common ground for debate on important environmental issues.

The Institute's board of directors represents a balanced mix of leaders within the environmental profession. Support for ELI comes from individuals, foundations, government, corporations, law firms, and other sources.

Environmental Law Institute

2000 L Street, N.W., Suite 620

Washington, DC 20036

Telephone: (202) 939-3800

Fax: (202) 939-3868

www.eli.org